THE BULLETIN

of the

AMERICAN ASSOCIATION

of

NURSE ANESTHETISTS

NOVEMBER

1941

VOLUME 9 NUMBER 4

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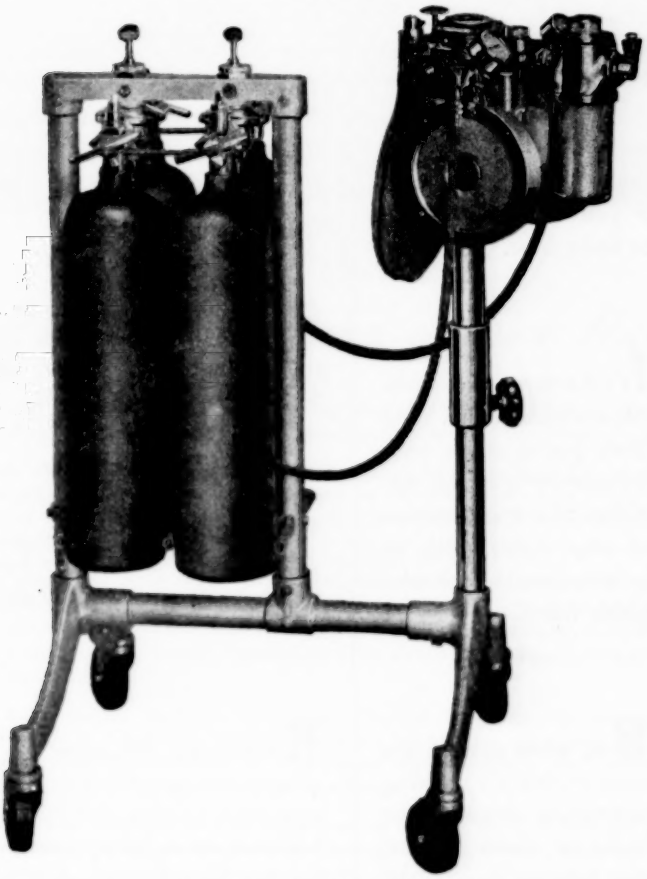

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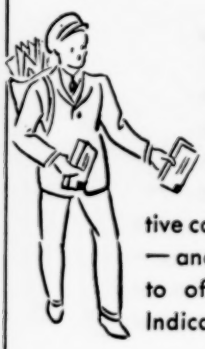

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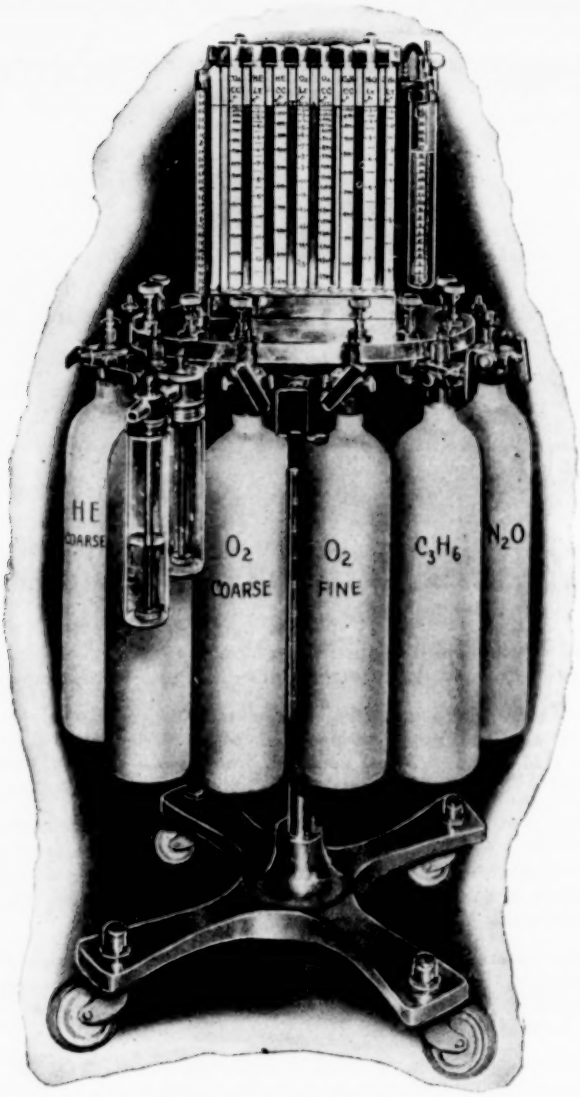

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BULLETIN OF THE AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

The Bulletin of the American Association of Nurse Anesthetists is published by the American Association of Nurse Anesthetists; Executive, Editorial and Business Offices, 2065 Adelbert Road, Cleveland, Ohio.

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EDITORIAL COMMUNICATIONS

The Bulletin invites concise, original articles on anesthesia. Description of new technics and methods are welcomed. Articles are accepted for publication with the understanding that they are contributed solely to the Bulletin of the American Association of Nurse Anesthetists.

Manuscripts submitted for publication may be sent to Gertrude L. Fife, University Hospitals, Cleveland, Ohio.

The American Association of Nurse Anesthetists does not hold itself responsible for any statements or opinions expressed by any contributor in any article published in its columns.

Manuscripts. — Manuscripts should be typewritten on one side of the paper only, with double spacing and liberal margins. References should be placed at the end of the article and should conform to the following style: viz., name of author, title of article, and name of periodical with volume, page, and year.

Illustrations accompanying manuscripts should be numbered, provided with suitable legends, and marked on margin or back with the author's name. Authors should indicate on the manuscript the approximate position of text figures.

Illustrations — A reasonable number of half-tones will be reproduced free of cost to the author, but special arrangements must be made with the Chairman of the Publishing Committee for elaborate tables or extra illustrations.

Reprints. — Fifty or more reprints may be obtained at a nominal cost if ordered within fifteen days following the date of publication of the Bulletin.

BUSINESS COMMUNICATIONS

All communications in regard to advertising, subscriptions, change of address, et cetera, should be addressed to the Chairman of the Publishing Committee, 2065 Adelbert Road, Cleveland, Ohio.

The Chairman of the Publishing Committee should be advised of change of address about fifteen days before the date of issue, with both old and new addresses given.

Because of the second class postal rates in effect the Postoffice does not forward the Bulletin unless extra postage is sent to the Postoffice to which the Bulletin was originally mailed.

Non-Receipt of Copies. — Complaints of non-receipt of copies should be made within ten days following date of publication, otherwise the supply is likely to be exhausted.

The Bulletin of the American Association of Nurse Anesthetists

VOLUME 9, NO. 4 NOVEMBER, 1941

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HELEN LAMB, President
November, 1941

NINTH ANNUAL MEETING

REPORT OF PRESIDENT

The Association year now closing has been studded with accomplishments that in future years will stand out as historic guideposts, marking the progress of those now-under-way major Association projects that seem destined to carry our field to its planned lofty level of accomplishment and strongly entrenched permanency.

While the details of the year's work will come to you in the form of reports by your various officers, and by the Chairmen of your Committees, I cannot let this occasion pass without expressing my keen appreciation of the fine coöperation that as President of the Association I have received, from the untiring coworkers who have so signally supported the work of our national organization.

No one familiar with the evolvement of professional history during the past several years, can fail to recognize and feel gratified at the constructive influence that our Association has wielded in the development of our field since that historic meeting was called a short ten years ago by our Honorary President, Miss Agatha Hodgins, to inaugurate the movement which was to grow to the present nation-wide American Association of Nurse Anesthetists.

Our determined unwillingness to assume complacently that our ultimate objectives have been by any manner of means *achieved* (or really more than *approached*) betokens discriminating appraisal of accomplished versus potential values. Our willingness to dedicate ourselves to the completion of the envisioned programs which are now under way, and to the development of even broader projects when their need emerges, attests a vigor of spirit which will brook no compromise to achievement of these worthy objectives.

That our organization is performing a service of significant professional value is evidenced by its continued healthy growth and sound expansion. While not all who apply for membership in our Association can merit acceptance (as its object is not merely an increase in numbers but rather to be prototypal of the standard of excellence in our field) the membership has increased this year by more than two hundred, bringing the current roll to almost twenty-four hundred —located in every one of the forty-eight States, in Hawaii, in the Philippines, in Canada, and in foreign countries as far away as China. Verily, our organization has carved for itself a distinctive niche in the progressive professional life of the present generation.

As you know, by having studied the By-Laws, the active affairs of the Association are administered by the officers whom you elect each year, supported by the Board of Trustees for which you also select the personnel by election, supplemented by an effective group of fourteen Standing Committees which function under active Chairmen and which report to you each year at the Annual Meeting. The usually arduous and sometimes prodigious work of your officers, board, and your committee workers, is conducted on an entirely volunteer basis by earnest-minded members whom you honor by your selection, and who, in turn, devote themselves to the task with an ardor that impresses all who come within range of its influence. But, as has been pointed out in several talks by our leaders at various state and sectional conventions, the number of members

who participate in the active conduct of the Association's affairs, is proportionally small when related to the numerical membership. To typify this point, I refer to a recent paper by Miss Hodgins, in which she commented that in probably no other organization of the size and activity of ours, is the degree of devotion given to it by such comparatively small groups of national and state volunteer workers; and she went on to urge that these great responsibilities of active administration, be more broadly divided between, and more widely shared by, our individual membership.

As I have said many times, both privately and publicly, such circumstance, in my opinion, characterizes an aspect of our development that should be stated and re-stated, emphasized and re-emphasized, until every member of our Association is imbued with the desire and the determination to participate personally in the deliberations of, and to become actively associated with, the administration of the present and the future affairs of our Association. Our organization, like any other great movement, can rise to its highest levels of accomplishment only by the pooling of intellect and the personalized coöperation of its individual membership. I urge every member to resolve to join personally in the activities of her State, her Sectional or our national Association, so that from these collective groups will rise new committee workers, new directors and new officers, to eventually join with and ultimately take over the high responsibilities of our present veteran leaders, whose single-minded wish is the advancement of our Association and its specialized field. Our Association of some twenty-four hundred members is simply the individual member multiplied over and over again. Its ultimate accomplishments will be proportional to the personalized coöperation and activities that each member individually is willing to give to the development of its programs.

To acquaint you now with some of the high lights of Association activities of the past year, but not in the detail with which they will come to you through the more complete reports of the Committees who have carried on the work:—

A year or so ago your Board of Trustees felt that the smoothest continuity of function of the office of President of our Association, would be enhanced by the introduction of an elective and administrative feature, parallel to that which is in effect in many other professional organizations, whereby the President automatically takes office after having served for a year as a "President Elect". Accordingly, an amendment was presented to you at the last Annual Meeting, eliminating the election of President, and substituting for it an annual balloting for a "President Elect" who would automatically take office as President the following year. You voted that amendment into the by-laws at last year's Annual Meeting. Mature study since then, and exigencies which present themselves concomitant to execution of the procedure at this time, have influenced your Board to the conclusion that without prejudice to the possible adoption of such a plan at some later time, it is desirable for the present to continue the elective procedure that has been in effect since the inception of our Association. Accordingly an Amendment has been drawn up by the Revisions Committee, and will be presented to you at the business meeting, reverting to our established organizational procedure whereby at this meeting you will as heretofore elect a President who will take office during this Convention in the usual way, and will not elect a President Elect—to automatically become President next year. The Board recommends your approval of the amendment when it is presented to you for vote.

Your Revisions Committee will also present to you other amendments which

it has drawn after meticulous and painstaking study of several aspects of the administrative Code of Rules.

Your Educational Correlating Committee has developed and is now proceeding with, a very ambitious program for the Educational Department of the Bulletin. Original articles of specific clinical interest to all members in the field have been arranged for serial publication; as well as other newly assembled didactic material. The zeal of this Committee should be encouraged. The scope of its work could be widened by constructive comments from members. Its Chairman would like your individual suggestions, looking to increasing the helpfulness of that department of the Bulletin.

The Educational Correlating Committee has also functioned very effectively in dividing between proper committees, educational activities which in many cases proved upon study to impinge upon the activities of more than one national committee. In an organization of our size and activity, widely developed interests present problems which many times overlap each other. Their assignment to and specific study by the proper committee for that function, greatly facilitate resolving these problems into useful conclusions.

Your Curriculum Committee has concluded compilation of a splendid revision of our previous comprehensive pattern curriculum. The newly revised curriculum will become available to the membership, through the Educational Department of the Bulletin. This marks another milestone along the path of our planned educational projects.

Your Committee on Education has completed the compilation and mechanical execution of the Schools Survey material, which is to form the basis of the Survey aspect of their program. The next phase of that project will go forward immediately the present convention is over and the members have returned to their home posts. While the Chairman of that committee modestly disclaims unusual credit for having thus promptly brought to a completion the preliminary design and execution of the basic mechanical details of the project, I would be remiss in my sense of appraisal if I did not take this occasion to voice my comment that no one who has not been intimately associated with the progress of that work, can have any real concept of the enormous multiplicity of detail that has been involved, or the obstacles that have been necessarily faced and overcome to bring this aspect of the program to its completion. Here stands another milestone, marking our progress toward the envisioned goal.

Your Committee on Public Relations and National Defense has during the past year conducted a survey of ignition accidents, which will take its place with contributions to the literature related to that subject. That Committee has also given study to certain phases of Defense needs, with particular reference to the rôle of the nurse anesthetist in the National Defense program. The subject is one which must be considered as still in the formative stage.

Your Seal Committee has made signal progress during the year, which bids fair to yield us an artistic combination of pin and other Association insignia.

Your Membership Committee has been very efficient this year. At times its duties became trying, when the line of demarcation between precision of ruling and sympathetic fairness, became complicated by a study of the merits of an applicant's credentials. Such case studies have been conducted with praiseworthy equity.

Your Nominating Committee has carefully tested the membership preference

for candidates for office, by contacts with members individually and with the Presidents of State Associations affiliated with our national body. It is believed, therefore, that the slate which they present represents a cross-section of national opinion among our members.

Your Publishing Committee has written new excellence and efficiency into its publication of the Bulletin. It has handled with rare tact, emergency publication situations that arose during the year.

Your Program and Arrangements Committees have felt the effect of National Defense activities. They have executed their difficult assignment with admirable effectiveness.

Turning now from retrospect to prospect, it seems inevitable that the cataclysmic period through which the world's political, social and economic structure is now passing, may thrust an imprint upon some aspects of our field, the ultimate significance of which can be appraised but feebly at this time. Already the expanding demand for more and more nurse anesthetists is placing a strain upon the existing supply, and imposing upon our field a responsibility that necessitates wisest study and broadest forward planning. We must certainly discharge our fullest duty to the *civilian* citizenry of our nation, which has been responsible for our creation as an entity and that has steadfastly sustained our field. We must also satisfy to the fullest, the actual needs of our *military* services, upon whose successful mobilization against the rampant aggressor forces depends the well being and perhaps even the existence, of our future national life.

The increased need for anesthesia service in the military services is due primarily to mere numerical increase in the armed forces. The increased need in civilian professional life, is due partly to voluntary transfer of anesthetists from civil to military service, and partly to the increased popularity of, and widened public participation in, medical and hospital insurance projects, with consequent greatly augmented demand for hospitalization, for surgery and for anesthetic service in civilian hospitals. Some of our institutions conducting schools of anesthesia have already approached Governmental agencies concerning possible increase in the number of anesthetists to be trained in their schools. I cannot propose that these increases in training facilities are a complete solution of the problem with which our field is faced. It is, however, a constructive step in the right direction, but one which must be intertwined with and dependent upon, adequate facilities for full education of such added personnel to the high standards of skill and proficiency to which our Association is committed.

The history of our Association from its inception until today has been one of constructive onward and upward progress, surmounting obstacles as they arose, driving ever forward to higher levels of accomplishment and ideals of service. By that same token, as we now face a future of developments whose implications no prophet may assume to predict, we may be certain that as we maintain our earnestness of purpose, our single-mindedness of service, we shall overcome successfully new problems as they arise; and create and maintain for our field in whatever may prove to be the structure of the future economic and professional life of our nation, a permanency and a status commensurate with our professional achievements and with our specialized devotion to public service.

Helen Lamb

September, 1941

REPORT OF EXECUTIVE SECRETARY

It is indeed a pleasure to see so many familiar faces, and surely we have no better manifestation of the growing interest in our Association than your presence here today. Through gatherings like this opportunities are afforded to meet interesting people and new friends and to make fine professional contacts.

The activities of the Association are evidenced largely by the steady growth in membership and the interest displayed by the State Associations and individual members in the program for advancement along educational lines. As the membership increases and more states become organized, the members seem interested to become more familiar with the functions of the Association, as indicated by the many and varied inquiries that came to us at Headquarters. The one regret we have is that it is not always possible to give the desired information, and at times we are baffled by the problems presented.

Some of the State Associations have been exceedingly active throughout the year and have put on membership campaigns to increase their membership. It has also been interesting to learn from the reports published in the Bulletin, the different methods used to increase State Association funds.

Applications acted upon by the Membership Committee		375
Applications approved:		
Organized states	295	
Unorganized states	50	345
Applications rejected		29
Applications deferred		1
Applications still in hands of Membership Committee		45
Applications not approved and returned by State Associations		12

Paid-up membership as of September 1, 1941:

	Active	*Associate*	*Totals*	
In organized states	2026	82	2108	
In unorganized states	265	19	284	
TOTALS	2291	101	2392	2392

Delinquent members:		
In organized states	135	
In unorganized states	26	
Total		161
Resignations		14
Deaths		9

Individual members in unorganized states and Secretaries of State Associations were notified as to the decisions of the Membership Committee.

Due to frequent changes of address, there is a great fluctuation in membership in the various State Associations. We have a record of 323 transfers and 588 changes of address this past year.

The applications of the following State Associations were approved for affiliate membership with the American Association of Nurse Anesthetists:

Arkansas, Iowa, Kansas, North Carolina

There are now twenty-nine State Associations. The anesthetists in Maine and Utah have applied for affiliate membership, and application blanks and instructions as to procedure to be followed in organizing were sent to both groups. We have not heard from Maine. We were advised by Utah recently that they deemed it advisable to postpone the organization of their state association for the present.

The Assembly of the Nurse Anesthetists of Illinois, Indiana, Michigan and Wisconsin held their first annual meeting in Chicago in May this year, with the Tri-State Hospital Assembly.

The Washington State Association of Nurse Anesthetists has become affiliated with the Washington Hospital Association, as well as with the American Hospital Association.

Other headquarters activities have been summarized as follows:

On February 1, 1941, a letter was sent to each Secretary or Secretary-Treasurer of the respective State Associations, calling their attention to Article XV, Section 13 of the By-Laws. A list of the present officers and members of the Board of Trustees of the American Association of Nurse Anesthetists was enclosed with a form letter indicating officers and members of the Board of Trustees to be elected at the annual meeting this year, requesting them to fill in names of suggested nominees and return to Mrs. Gertrude Troster, Chairman of the Nominating Committee, not later than May 1, 1941.

Within a few weeks following the annual meeting in 1940, notices of membership dues were sent to 366 individual members in the unorganized states. Second notices were sent to 74 members on March 13, 1941. State Secretaries were also asked to send second notices to members of their respective Associations.

Correspondence with Committees covered the following:

Notifications of appointments to chairmen and members of committees.

Copies of Memorandum of Instructions sent to chairmen of all standing committees.

The chairmen of the respective committees were asked to submit quarterly and annual reports, and reminders were sent to chairmen who did not submit their reports promptly.

Constitutions and By-Laws were sent to the Revision Committee for their consideration as follows:

Kansas Constitution and By-Laws
North Carolina Constitution and By-Laws
Rules of the Assembly of the Nurse Anesthetists of Illinois, Indiana, Michigan and Wisconsin
Revised Georgia Constitution and By-Laws
Revised New York Constitution and By-Laws
Revised Nebraska Constitution and By-Laws

After notification of the appointment of Miss Agatha Hodgins as Chairman of the Committee on Education, letters received from the Schools of An-

esthesia in connection with the Visitation Program were promptly forwarded to her.

In response to the announcement in the Bulletin of the contest open to students of Schools of Anesthesia, eleven contest papers were received at Headquarters and forwarded to Miss Hodgins for grading. All contestants were notified of the decision, and prize awards were sent to the prize-winning contestants.

Lists of names and addresses of State Association Presidents, Secretaries and Treasurers were sent to Miss Miriam G. Shupp, Chairman of the Public Relations Committee. Six hundred and sixty explosion hazard questionnaires were returned by the respective members and forwarded to Miss Shupp.

Three hundred requests for lists of Schools of Anesthesia were received. Although some of these requests can be handled through mimeographed letters, the majority contain so many inquiries on various subjects that they require individual attention. Letters are received from doctors, superintendents of hospitals, graduate nurses, student nurses in training and high school students, requesting all possible information, not only about the various Schools of Anesthesia, but also in regard to anesthesia in general, nurse anesthetists, data for note books on anesthesia and vocational study courses. Correspondence during the past year included approximately 3309 pieces of mail with 2870 enclosures received, and 3778 pieces of mail with 8849 enclosures sent out.

Apparently from all reports, the demand for nurse anesthetists is much greater than the supply, and while we do not conduct a Placement Bureau, we have received fifty-six requests for nurse anesthetists and fifteen for positions. There probably has never been a time in the history of the American Association of Nurse Anesthetists when there has been such a great demand for the well-qualified anesthetist.

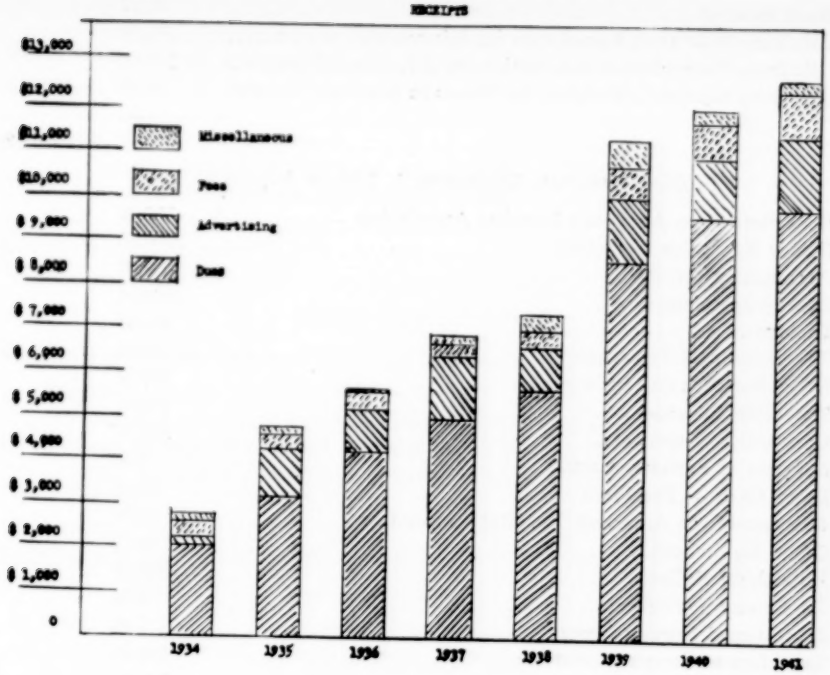
In this period of unrest and turmoil many inquiries come to us as to what the American Association of Nurse Anesthetists is doing for the program of national preparedness, which is one of the problems which deeply concerns the nurse anesthetist and the hospitals.

Anna Willenborg

REPORT OF TREASURER

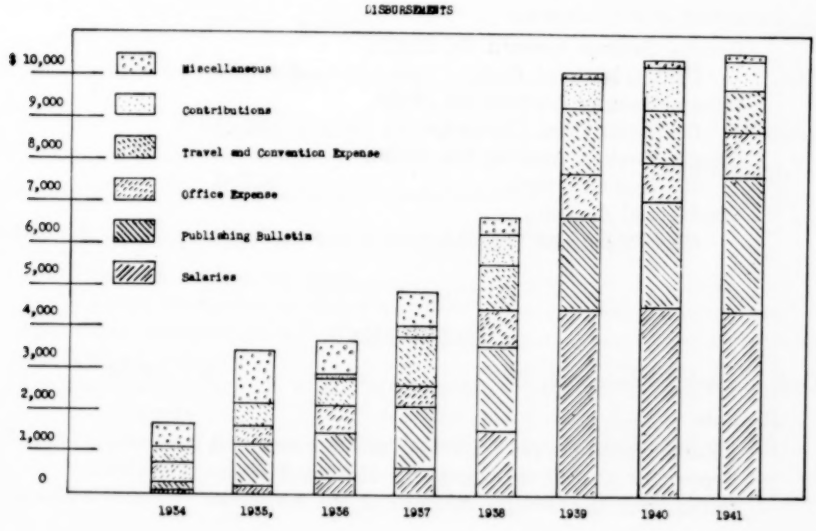
September 1, 1940 *to August* 31, 1941, *inclusive*

Cash in Bank August 31, 1940		$ 6039.83
Receipts—September 1, 1940 to August 31, 1941, inclusive		
Initiation fees	$ 786.00	
Dues—American Association	8069.20	
—State Associations	897.25	
Reserved for Trust Fund	243.90	
Reserved for Publishing Fund	1258.56	
Income from Sale of Advertising	1535.00	
Registration fees—annual meeting	190.00	
Miscellaneous Income	31.95	



Receipts—The increases in fees and dues are indicative of the progressive, normal growth of the organization. From 1939 on, part of this increase is due to the advance in fees and dues.

When the organization was moved from Cleveland to Chicago the reserve fund accumulated during the years from 1931 to 1937 amounted to $7826.68.



Bank Interest	60.17	
Gift from New York Association for Educational program	100.00	
Gift from Pennsylvania Association for Educational program	100.00	
Gift from Agatha C. Hodgins, for Prizes in Students' Contest	50.00	13322.03
		$ 19361.86

Disbursements—September 1, 1940 to August 31, 1941

Contribution to American Hospital Association	$ 720.00	
Salary Executive Secretary	3000.00	
Accounting Service	50.00	
Stenographic Service	1673.61	
Postage	464.44	
Telephone and Telegraph	96.78	
Office Supplies and Printing	193.58	
Traveling Expense	174.54	
Convention Expense	826.57	
Services of Parliamentarian	3.00	
Petty Cash — President	10.00	
Membership in American Hospital Association	20.00	
Office Equipment	23.70	
Publishing Bulletin	3168.08	
Books and Periodicals	8.00	
Educational Survey Expense	7.00	
Transfers to State Associations	286.25	
Transfers to Trust Fund Savings Account	243.90	
Students' Contest: First Prize, to Margaret E. Scott	35.00	
Second Prize, to Viola R. Nix	15.00	
Miscellaneous Expense	72.39	$ 11091.84
Cash in Bank August 31, 1941		$ 8270.02

Consisting of the following:

General Savings Account No. D16133 Central National Bank	$ 4243.79	
General Savings Account No. 106581, Cleveland Trust Company	1435.31	
General Savings Account No. 102794, National City Bank	2013.93	
Commercial Account, Cleveland Trust Company	576.99	$ 8270.02

TRUST FUND

Cash in Bank September 1, 1940	$ 782.50	

Receipts

Total amount reserved for Trust Fund, accumulated September 1, 1940 to August 31, 1941, and transferred from the General Account of the American

Association of Nurse Anesthetists to the Trust Fund Savings Account No. 110399	243.90	
Interest earned over same period	7.74	
		$ 1034.14
Disbursements		
Interest earned during year transferred to Trust Fund Income Savings Account No. 110398	7.74	
Cash in Bank September 1, 1941		$ 1026.40

TRUST FUND INCOME

Cash in Bank September 1, 1940	$ 15.66	
Receipts		
Transfer of interest earnings from Trust Fund Savings Account No. 110399, for year ended August 31, 1941, to Trust Fund Income Savings Account No. 110398	7.74	
Cash in Bank September 1, 1941		$ 23.40

SUMMARY OF ASSETS

As of August 31, 1941

Cash on deposit in General Savings Accounts	$ 7693.03	
Cash in Commercial Account	576.99	
Cash on deposit in Trust Fund Savings Account	1026.40	
Cash on deposit in Trust Fund Income Savings Account	23.40	
Six (6) United States Government Postal Savings Bonds (par value at maturity $6000.00)	4500.00	
TOTAL ASSETS		$ 13819.82
Total August 31, 1940		11337.99
Increase in Total Assets		$ 2481.83

Gertrude Fife

REPORT OF MEMBERSHIP COMMITTEE

Meetings held during the year	12
Applications submitted to the Committee	418
Applicants accepted as active members	346
Applications rejected	26
Applications referred to Board of Trustees (included in applications rejected)	5
Applications held pending further investigation of applicants' qualifications for membership	45
Applications deferred	1

The work of the Membershp Committee has been interesting, but difficult in some respects. A review of the procedures followed may be of interest and may help to clear up a few of the misunderstandings that have arisen this year.

The individual's application, if she resides in an organized state, must first be passed upon by the Membership Committee in that state. It is then sent to national headquarters in Chicago and thence to the American Association Membership Committee. If the individual is not in an organized state, the application is sent direct to national headquarters.

After the Chairman of the Membership Committee of the American Association receives the application, she checks it to make certain that it is filled in properly and the information complete, and a letter is sent to the school from which she was graduated, asking for the individual's qualifications as an anesthetist, also verifying the fact that she has obtained the instruction in anesthesia offered in that institution. When the application is complete, it is referred to the Committee and the decision of the Committee is sent to the national headquarters and from thence to the State Association Secretary in the organized state, or to the individual in the unorganized state.

If there is any question in regard to the individual's qualifications, the Committee may request further information, and this is obtained either from the individual herself or from those whom she may give as reference.

The Committee has been anxious to pass favorably upon the applications of all who are eligible for membership in this Association, but we have been equally concerned to make certain that those accepted meet the requirements as set forth in the by-laws. Since the organization of our Association in 1931 we have been making a constant effort to raise the standards of the nurse anesthetist, and to make our organization a potent influence in our field, and our object will be defeated unless the Membership Committee studies carefully the applications of all those who desire membership. If we are to admit poorly trained anesthetists to membership, we shall suffer as an organization, and our individual members will feel that there is no prestige or high standing connected with belonging to the Association.

There have been delays this year in the final decisions in regard to certain applications, which have been caused largely by the Committee's inability to obtain the necessary information that would justify this Committee in making a final decision relative to the indivdual's qualifications. Some of these delays have been the result of, First, the failure of the School of Anesthesia from which the applicant was graduated to send in to the Committee the information required; and, Second, in some schools incomplete records left in the past have made it impossible for the hospital to verify information relative to the individual. In certain instances we have been referred to the anesthetist or doctor who was in charge when the student was graduated, and in trying to locate such individuals it has been impossible to ascertain their present whereabouts. In this connection, however, we wish to state that the outstanding Schools of Anesthesia have been prompt in replying to our inquiries.

It has also come to the Committee's attention that some applicants who have been rejected during the year have made complaints because others who were graduated from the same School of Anesthesia, possibly in the same

class with themselves, were accepted in the past as members of the Association. In this connection we want to call attention to the fact that while a member from such a school may have applied and have been accepted previously, the qualifications for membership in the Association are now more rigid than they were in previous years.

In reviewing the work of the Committee, and in analyzing some of the problems that have been met with, we strongly urge the Association to develop a program whereby there will be no question of the individual's qualifications for membership in the Association. As we see it, a national examination would probably be the fairest and most accurate way of determining the individual's knowledge of the subject of anesthesia. Regardless of the future policy relative to admitting members to the Association, we feel that with the raising of standards, the Membership Committee must be supported by a more complete knowledge of the individual's eligibility for membership. We are at the stage in our growth as an organization where, more than ever before, the qualifications of each member admitted to the Association are either an asset or a liability to the group as a whole.

The shortage of anesthetists and the defense program will undoubtedly produce many problems which will lead us to question the character of the training received by some of those who will make application for membership in the future, and we therefore urge that serious study be given to this subject within the next few months.

We wish to take this opportunity to thank the Directors of the Schools of Anesthesia who have coöperated with us so fully and promptly. We wish also to express our deep appreciation to Miss Mildred Sauers of City Hospital, Cleveland, who has typed and mailed out the large number of forms necessary in connection with the work of the Committee. She has performed this service cheerfully, promptly and efficiently, and has done it gratis, as a contribution to the Association.

Respectfully submitted,

MARY LUCILE KELLOGG
MYRN E. MOMEYER
LUCY E. RICHARDS, Chairman

Frances Hess, Alice M. Racette, Gertrude Steffen
New York Association

Palma Anderson, Hazel Peterson, Mary Janovich
Minnesota Association

REPORT OF COMMITTEE ON EDUCATION

The activities of the committee have been concerned primarily with plans to make practically effective, educational projects set forth in previous annual reports of this committee. Given in the order of priority these are:

First: School Survey Project: Work on this project has been concerned with:

(a) Completion of inclusive study unit forms to be used in conducting the survey of listed Schools of Anesthesia.

(b) Preparation of model permissive letter forms for use in establishing contact between this association and hospital heads, school directors and qualified member survey visitors, relative to conducting an effective survey of such schools.

(c) Compiling of list of qualified member visitors willing to conduct survey of designated schools.

(d) Preparation of memoranda of survey instructions for use by appointed visitors and school directors.

(e) Compiling and assembling into the form of a model master survey folio containing all material and instructions necessary to conduct the survey — such after mimeographing to be sent to all survey visitors.

In connection with the above, the committee reports that this folio has been completed, presented to, and received the sanction of Board, and sent to the designated source for mimeographing, assembling and mailing out to appointed survey visitors.

It was hoped by this committee that the survey would have progressed to the point where a partial report on results could have been made at this meeting. However, the magnitude of the task, and the circumstances of press of work at headquarters, necessitated change in regard to the center from which the mimeographing and mailing out will be done, and therefore this mechanical part of the project has been delayed. Also the fact that the entire conduct of the survey per se is being done by volunteer members, making it necessary to synchronize the setting of survey dates with time convenient to survey visitors and school directors; are factors which tend to lengthen the time taken for completion of this part of the project.

This committee therefore reports that the Schools of Anesthesia in Massachusetts are, to date, the only schools surveyed.

This committee is working on forms for tabulation of final results of this project, and it is hoped that within the year the complete results of the survey will be tabulated and ready for publication in the Bulletin.

Second: Inter-related problems to School Survey: Preliminary study of problems impinging on and closely related to the main objectives of the school survey, revealed to this committee a need for bringing before the Board certain existing situations relative to now listed Schools of Anesthesia. Briefly these are:

(a) Need for revision of existing lists of Schools of Anesthesia now available to applicants for same, from headquarters. Such revised lists arranged to give to applicant full required information in regard to Schools of Anesthesia.

Study of and establishment of policy in regard to

(b) Schools of Anesthesia functioning in intermittent fashion; due to the fact of small *and not* continuous enrollment of students throughout the year.

(c) Schools of Anesthesia designed to educate only graduates of the nursing school attached to the specified hospital.

(d) The problem of small schools continuously functioning but graduating one to four students a year.

(e) Geographical distribution of Schools of Anesthesia.

While it is obvious that information acquired as a result of the school survey proper, will greatly clarify such issues; it was also evident to this committee that the formulation of a definite policy to take adequate care of same would be greatly expedited, by preliminary presentation of such to the Board, with recommendation that through the Educational Correlating Committee these problems be given further needed study — as a separate unit of inquiry. Such action has therefore been taken, through the Chairman of the Board of Trustees.

Third: Other component units of the educational plan: While this committee has been mainly concerned with the school survey proper, recognition has been taken of the fact that each unit of the educational plan must be completed, before synchronization of each such component part into the program as a whole can be made.

Accordingly, this committee compiled a memorandum, covering the field of inquiry, on preparation of sets of examination questions for use in examination of candidates presented for certification and registration in the American Association of Nurse Anesthetists, if and when such a plan is put into effect. This memorandum, prepared with the object of obtaining assistance of those most qualified to contribute, was sent with request for such help to Directors of Schools of Anesthesia. It is the hope of this committee that in a matter so deeply concerned with the work of Schools of Anesthesia, recipients of this memorandum will respond to the request made. The compilation of questions to be used in *actual* examination of candidates will necessarily be the responsibility of the examining board to be appointed.

Fourth: *Committee participation in convention program.* Instructors session; arrangements for conduct of this session have been made. Memoranda being sent to school directors and interested members, asking for educational contributions on pertinent subjects, to be used as discussion material at this meeting. Sister Rodolpha, member of this committee, to preside over and be responsible for assembling and presentation of discussion material.

Fifth: Committee participation in sectional association meeting. The chairman of this committee accepted invitation and was the guest, at the annual meetings of two sectional groups: (1) The Mid-South Assembly of Nurse Anesthetists, at which a paper on "Permanent Values in Organization" was given; and (2) at the annual meeting of the Southeastern Assembly of Nurse Anesthetists, at which a paper on "The Educational Objectives of the American Association of Nurse Anesthetists" was presented. This committee chairman counts attending these meetings as two very pleasant, instructive and valuable experiences.

Sixth: During the year, theses submitted by contestants for prize awards given by the Pennsylvania Association of Nurse Anesthetists, and open to students from hopitals in that state, were examined, graded by this committee, and returned to the Secretary-Treasurer of the Pennsylvania association.

Also theses submitted by contestants in the prize contest open to students in *all* states were received, examined, graded and returned to headquarters for return to contestants. A report on this contest has been made to the Chairman of the Board of Trustees and notes of appreciation sent to contestants.

The routine business of this committee this year has been active and interesting. Every referred or direct inquiry has been given careful consideration and required information sent out promptly.

Certain aspects of the handling of this committee's business, in the opinion of its chairman, belong more properly within the function of the Educational Correlating Committee, and will therefore be included in the report of that committee.

The chairman of this committee wishes to express her appreciation of the efficient assistance and fine coöperation of the members of the committee. To the Board of Trustees, sincere thanks for coöperation extended on committee work.

Respectfully submitted,

Hazel Blanchard,
Sister Rodolpha,
Kathryn Eddy.
Agatha Hodgins, Chairman.

REPORT OF PUBLIC RELATIONS AND LEGISLATIVE COMMITTEE AND COMMITTEE TO AID IN NATIONAL DEFENSE

A special Public Relations Committee was appointed in September, 1940 at the annual meeting in Boston and the work for this year was incorporated with that of the Legislative Committee.

A special Committee to Aid in National Defense was also created by the Board of Trustees at the Boston convention and the members appointed to the Legislative Committee were assigned to this project. This report will therefore cover these three divisions of committee work.

The Public Relations Committee was occupied during the early part of the year with the questionnaire that went out to the membership relative to explosion statistics. This part of the Public Relations Committee report was presented separately at the Wednesday afternoon session and is published on page 302 of this issue.

The Chairman of the Public Relations Committee participated in the annual meeting of the Michigan Association, held in Detroit on February 22, 1941. The paper presented there was pertinent to public relations and was published in the May, 1941 issue of the Bulletin, pages 100 to 106, under the title: "The Progress of the Nurse Anesthetist."

In April a letter was sent out to all State Association Presidents, Secretaries and Treasurers, appraising them of the enlarged scope of the work of the Legislative Committee and asking their assistance. It may be that this letter did not state clearly enough the aims and purposes of the Public Relations Committee and the kind of assistance desired, since only one response to this letter was received. The Chairman of the Public Relations Committee was appointed to conduct the Advisory Council Session of this convention, and in August a letter was sent out to all State Presidents and Chairmen of the Standing Committees of the American Association of Nurse Anesthetists, which members constitute the Council. This letter again stated the object of this Committee and of the Council and asked for a statement of problems and suggestions as to subjects for discussion at the Advisory Council meeting. It is hoped that through discussion of these problems and other developments during the past year, the ground work may be laid for a year of accomplishment by the Public Relations Committee.

There has been no work this year involving legislation, no legislative matters having arisen.

The activities of this Committee in relation to National Defense are set forth on page 232 of the August issue of the Bulletin.

During recent weeks a questionnaire has been sent to the Schools of Anesthesia, asking for information in regard to the possibility of training an additional number of students in their schools to help in relieving the present shortage of nurse anesthetists in civilian hospitals.

Respectfully submitted,

HILDA R. SALOMON
MAE B. CAMERON
ESTHER J. MEIL
MIRIAM G. SHUPP, Chairman

September 4, 1941

REPORT OF THE CURRICULUM COMMITTEE

During the past year the activities of the Curriculum Committee have been concerned with rearrangement of the several divisions of the Curriculum, particularly those divisions which include the sequence of subjects taught and the time allotted to each subject.

The aim of this Committee is to build a curriculum that will serve as a practical guide for use in all Schools of Anesthesia. Although a great many changes have been effected in the curriculum since it was submitted to the Board of Trustees at the Annual Meeting of this Association in 1940, your Committee feels that it is yet incomplete.

In closing this report, this Committee wishes to express appreciation for the splendid assistance and support it has received from the officers of the Association and the members of the Committee on Education.

Respectfully submitted,

ESTHER MYERS
EDNA BANDER
EMMA EASTERLING
ROSALIE MCDONALD, Chairman

REPORT OF PUBLISHING COMMITTEE

Financial Statement:

Surplus in Publishing Fund, August 31, 1940...			$ 1044.72
Publishing Fund accumulated September 1, 1940 to August 31, 1941 (subscription price of Bulletin — 50c, deducted from dues of each individual member, plus sale of Bulletins to non-members) .....$ 1258.56			
Income from Sale of Advertising, September 1, 1940 to August 31, 1941.....	1445.00	$ 2703.56	
Total Cost of Publishing Bulletin, including postage, for year ended August 31, 1941....		$ 3168.08	
(Total cost of publishing membership list in August, 1941 issue.....$273.40)			
SURPLUS, August 31, 1941....			$ 600.20

COMPARATIVE STATISTICAL REPORT FOR YEARS 1937 - 1941 *INCLUSIVE*:

	No. of pages exclusive of advertising	No. of copies Distributed	Advertising pages
1937	206	6400	28
1938	232	7075	29
1939	274	8600	30
1940	297	9500	30
1941	356	10350	32

Respectfully submitted,
Harriet L. Aberg
Barbara Brown
Rose G. Donavan
Gertrude L. Fife, Chairman

September 10, 1941

REPORT OF THE REVISIONS COMMITTEE

The Constitutions and By-Laws of the State Associations of Kansas, New York, Georgia, North Carolina and Nebraska were approved by this committee, with more than fifty recommendations.

The Constitution and By-Laws of the Southeastern Assembly of Nurse Anesthetists, composed of the states of Alabama, Florida, Georgia, Louisiana and Mississippi, were approved.

The rules of the Assembly of Nurse Anesthetists of Illinois, Indiana, Michigan and Wisconsin, with some recommendations, were approved.

The "Suggested Form" of Constitution and By-Laws for State Associations was redrafted to conform in its entirety to that of the American Association of Nurse Anesthetists.

This committee recommends the use of the draft for the Southeastern Assembly of Nurse Anesthetists as a "suggested form" for sectional or divisional groups.

The study of the By-Laws of the American Association of Nurse Anesthetists entailed a large volume of correspondence between the Committee, the

Executive Secretary and members of the Board of Trustees. After careful study some forty recommendations are presented for your consideration.

Respectfully submitted,

MYRA BELLE QUARLES
RUTH BOTSFORD WIDMEYER
VERNA M. RICE, Chairman

The above recommendations were accepted, and are incorporated in the By-Laws published on pages 306 to 318 inclusive, this issue.

REPORT OF THE SEAL COMMITTEE

The corporation seal made from the design approved at the annual meeting held in Boston in September, 1940, has been in use for nearly a year. The further utilization of the same design for pin, letterhead and Bulletin cover will be completed as soon as possible.

As the work progressed, divergencies of opinion arose which we felt merited further discussion in open meeting and submission of samples of all three uses. This was done at the meeting of the Board of Trustees and at the business session in Atlantic City. Suggestions and criticisms then made are being given consideration.

The consensus favored a few minor changes in the die work for the pin. We hope the second sample, which should reach us soon, will be satisfactory. The Seal Committee and the Board of Trustees will again have the opportunity to criticize the die maker's effort. Although this will cause delay, we believe the result will justify it. Once the die has been accepted and production authorized, the pins will be available to the membership in a short time, although the exact date cannot be given at present.

The Bulletin cover and letterhead have also been designed by the same artist. We made such minor changes as we felt better fitted them to our use, without altering the fundamental design.

We have striven throughout for a result that would give the greatest pleasure to the greatest number. I wish to particularly thank the members of the Seal Committee, the Board of Trustees and the members, who, from the convention floor, contributed suggestions of value.

EXIRE O'DAY
ESTHER MEIL
LOUISE SCHWARTING, Chairman

HEADQUARTERS

American Association of Nurse Anesthetists

18 East Division Street

Chicago, Illinois

Miss Mary E. Appel, Executive Secretary

SURVEY—EXPLOSIONS AND FIRES

Conducted by MIRIAM G. SHUPP,
Chairman of the Public Relations Committee

During the early part of the current year, a questionnaire was prepared by the Public Relations Committee for the purpose of obtaining statistics on explosions which have occurred in hospitals where members of the American Association of Nurse Anesthetists are employed. In January, 2500 questionnaires were mailed to the membership, with the hope that at least 50 per cent would be returned. However, only 652, or 25 per cent, were received. A number of the members reporting did not fill in the questionnaire, but merely stated that they had had no explosions. A number also reported that there had been no explosions, adding that it would be impossible to fill out the questionnaire as "no records are kept," or "no records of any kind are kept." These statements were made concerning hospitals in which both nurse anesthetists and physician anesthetists are in charge of the Department of Anesthesia.

In other instances the questionnaires were returned almost immediately, complete in every detail. The only logical conclusion one could draw regarding these questionnaires was that complete and detailed records are kept in the Anesthesia Departments from which these questionnaires came, and the filling out of the American Association questionnaire was merely a matter of transferring the data asked for from their records to our form. These questionnaires *also* came from hospitals in which both nurse anesthetists and physician anesthetists are in charge of the Department of Anesthesia.

The primary objective in circulating this questionnaire was not only to obtain data that might help in the current work being carried on to eliminate, insofar as possible, the explosion hazard relative to anesthetics, but also to obtain information as to the number of anesthesias given by nurse anesthetists yearly and to evaluate the percentage of explosions and fires in their hands in relation to the total number given by them.

In the article by Dr. B. A. Greene, which appeared in "Anesthesiology", March, 1941, he has reported in detail 230 explosions and fires. I quote: "Table 16 shows that static explosions have occurred under the administration of physician anesthetists as well as nurse technicians. It may seem surprising to find the high proportion of physician anesthetists involved, but this is easily understood when we note that many of the physician anesthetists were internes who in most hospitals today, we must admit, possess less knowledge of anesthesia usually than do nurse anesthetists. Also physician anesthetists have been more thoroughly canvassed by our inquiry than technician anesthetists. Furthermore, we have found that a very large percentage of specialists in anesthesiology have long neglected the practical application of the most elementary methods of static prevention."

Under Table 16 are listed: Nurse Anesthetists—13; Physician Anesthetists—25. These figures mean nothing relative to the percentage of explosions in the hands of nurse anesthetists versus physician anesthetists, because as Dr. Greene has stated, the physician anesthetists were more thoroughly canvassed. These figures would have value only in relation to the number of anesthesias administered by each group compared with the number of explosions that occurred in each group. We had hoped for such statistics from the

questionnaire in relation to our own group but we have been prevented from obtaining this data because of lack of response from the membership and lack of complete data on many of those which were returned.

Although we cannot call this project of the Association, through its Public Relations Committee, an unqualified success, we feel that the time and effort spent by this Committee and the money spent by the organization was not wasted if through this report we can stimulate and interest our membership (located in Departments of Anesthesia in which statistical records are not kept) to institute in their departments a system of complete records. Also this effort will not be wasted if we can stimulate and interest our membership to cooperate and respond wholeheartedly to any project, whether it be state, sectional or national, which for its success, calls for such cooperation and response from every member. In many situations which call for group effort, we are prone to rationalize thus: "What I do or do not do personally (since I am only one of many) cannot make the slightest difference in the outcome, and it will mean time and effort for me to do it, so I will not bother." You are all familiar with the old rhyme that begins with "the loss of a shoe for want of a nail" and ends up with "the loss of a kingdom for want of this same little horseshoe nail." The value of personal effort even in little things should never be minimized.

Since cyclopropane is the only anesthetic that has come into use since the date of the first reported explosion in this series of twenty-nine, the ether group is particularly interesting from the standpoint of the number of explosions and fires as compared to the ethylene and nitrous oxide-ether explosions. Whether this is due to the large percentage of cases done with ether or whether ether has been considered safer and in consequence fewer precautions taken, we do not know and could not learn from the questionnaires, since the question in regard to the total number of each of the various anesthetic agents used was not answered by a large enough group to obtain statistical data as concerns the use of drop ether and ether suction machines.

We do know now, however, that explosions and fires of this nature are wholly preventable. To attempt to set forth here any recommendations for prevention of explosions and fires would be entirely superfluous. This has already been covered thoroughly and completely in published articles so far as present knowledge goes. The research on explosion hazards is still being carried on and, without doubt, the last word has not been said.

In conclusion, may we urge that those of you employed in Departments of Anesthesia where no records are kept, use your influence to start a system of departmental statistical records. It is the intention of the Public Relations Committee to recommend to the Board of Trustees at this convention that a special committee be appointed to study anesthesia records and charts and make recommendations concerning same, and to give assistance to any anesthetist requesting such assistance in establishing a system in her respective department.

Lastly, may we urge that every member study carefully the latest published reports on explosion hazards and prevention, such as Dr. Greene's report, previously referred to, also the "Report of Committee on Gas", page 197, of the August, 1941, issue of the Bulletin; that every member keep herself up to date on the additional knowledge that is being acquired through the concerted efforts of the individuals and groups now studying this problem so important to us; and further, that the recom-

mendations given by these authorities be followed, in order that if in 1942 or 1943, or any subsequent year, such a questionnaire should again be circulated, we *could* have a response from every member, "No fire or explosion."

The following tables are a compilation of the data received from the 652 reporting members. One very interesting and gratifying item that was noted on many of these returned questionnaires was the statement, "Only members of the American Association of Nurse Anesthetists employed in our hospital."

KEY

M.—Member American Association of Nurse Anesthetists
N.M.—Nurse Anesthetist *not* a Member
St.—Student Nurse Anesthetist
P.A.—Physician Anesthetist

1.

Questionnaires mailed	2,500
Questionnaires returned	652
Explosions and fires reported	29
In hands of members of A.A.N.A.	16
In hands of non-member nurse anesthetists	5
In hands of student nurse anesthetists	2
In hands of physician anesthetists	6

2. *EXPLOSIONS AND FIRES*

*By Year**		*By Agent*	
1925	1	Drop ether	5
1927	2	Ether suction	8
1929	1	Ethylene	6
1931	2	Nitrous oxide-oxygen-ether	5
1934	1	Cyclopropane	2
1936	1	Cyclopropane-ether	2
1937	2	Cyclopropane-ethylene-ether	1
1938	3		
1939	6		
1940	1		
Not Reported	9		
TOTAL	29	TOTAL	29

**Note*:—Months in which explosions and fires occurred not reported in sufficient numbers to be of any value.

3. *DAMAGE*

To Patient		*To Personnel*		*To Machine*	
Fatal	6	Burned	4	Ruined	3
(2 ruptured lung)		Cut with glass	1	Damaged	13
Slight	2	Thrown to floor (bruised)	1	Slight	2
None	12	None	16	None	7
Not reported	9	Not reported	7	No machine (drop ether)	4
TOTAL	29	TOTAL	29	TOTAL	29

4. *NITROUS OXIDE—OXYGEN—ETHER*

			Damage	
	Cause	*Patient*	*Personnel*	*Machine*
1. M.	Not determined	Fatal	Burned	Damaged
2. M.	Static	Not reported	Not reported	Ruined
3. M.	Cautery	None	None	Damaged
4. P.A.	Cautery in mouth	Not reported	Not reported	Damaged
5. M.	Cautery close to mask	None	None	Damaged

*CYCLOPROPANE WITH SEQUENCES**

1. M.	Static	Fatal	None	Damaged
2. St.	Static	Sl. Bleeding Nose-Mouth	None	Damaged
3. M.	Static	Slight	None	Slight
4. M.	Static	Fatal (ruptured lung)	Cuts	Damaged
5. M.	Static	None	None	Damaged

**Note*:—Cyclopropane discontinued in one hospital reporting an explosion.

5. *ETHYLENE WITH SEQUENCES**

			Damage	
	Cause	*Patient*	*Personnel*	*Machine*
1. P.A.	Unknown	Fatal	None	None
2. M.	Static	Fatal	None	Damaged
3. M.	Static	Not reported	None	Slight
4. N.M.	Static	None	Sl. burns	None
5. P.A.	Static	None**	None	Damaged
6. P.A.	Static	None**	None	Damaged

* Ethylene not discontinued in any hospital reporting an explosion.
** *Notes 5 and 6.* Patient not in circuit when explosion occurred.

6. *ETHER GROUP*

				Damage	
	Machine	*Cause*	*Patient*	*Personnel*	*Machine*
1. M.	Ether suction	Overheated motor	None	None	None
2. M.	Ether suction	Electric heater	None	Thrown	None
3. M.	Connell ether-air	Short circuit	Not reported	Not reported	Damaged
4. M.	Pillings suction	Undetermined	Not reported	Burned	None
5. M.	Mueller suction	Caught fire	None	None	None
6. N.M.	Mueller suction	Spark	Not reported	Not reported	Ruined
7. P.A.	Ether suction	Spark	None	None	None
8. M.	Ether suction	Spark	None	None	None

	Machine	Cause	Patient	Damage Personnel	Machine
1. St.	Drop ether with 0_2 McKesson gas	Static broken wire in tubing	None	None	Damaged
2. N.M.	Drop ether	Cautery around face	Not reported	Not reported	No machine
3. N.M.	Drop ether	Cautery	Not reported	Not reported	No machine
4. P.A.	Drop ether	Cautery	Not reported	Not reported	No machine
5. N.M.	Drop ether	Cautery	Fatal (Ruptured lung)	Sl. burns	No machine

CERTIFICATE OF INCORPORATION

of

AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

STATE OF ILLINOIS } SS
Cook County }

To Edward J. Hughes, Secretary of State:

We, the undersigned, citizens of the United States, propose to form a corporation under an Act of the General Assembly of the State of Illinois, entitled "An Act concerning Corporations," approved April 18, 1872, and all Acts amendatory thereof; and for the purpose of such organization we hereby state as follows, to-wit:

1. The name of such corporation is American Association of Nurse Anesthetists.

2. The object for which it is formed is

1. To advance the Science and Art of Anesthesiology.
2. To develop educational standards and technique in the administration of Anesthetics.
3. To facilitate efficient cooperation between nurse anesthetists and the medical profession, hospital and other agencies interested in Anesthesiology.
4. To publish periodicals and to issue bulletins from time to time to aid in the general purpose of the organization.
5. To establish and maintain a central bureau for information, reference and assistance in matters pertaining to the Science and Art of Anesthesiology.
6. To promulgate an educational program with the object of disseminating through proper channels, the importance of the proper administration of anesthetics.

3. The management of the aforesaid American Association of Nurse Anesthetists shall be vested in a board of Eight (8) Trustees.

4. The following persons are hereby selected as the Trustees to control and manage said corporation for the first year of its corporate existence, viz.:

Miriam Shupp	260 Crittendon Blvd.	Rochester, N. Y.
Sister M. Borromea	St. Francis Hospital	Peoria, Ill.
Gertrude Fife	2065 Adelbert Rd.	Cleveland, Ohio
Agatha Hodgins	Bridge St.	Chatham, Cape Cod, Mass.
Hilda Salomon	Jewish Hospital	Philadelphia, Penna.
Theresa McTurk	1903 Green St.	Philadelphia, Penna.
Dorothy Hoadley	Harris Mem'l Methodist Hosp.	Fort Worth, Tex.
Louise Schwarting	Lutheran Hospital	Fort Dodge, Ia.

5. The location is in the city of Chicago in the county of Cook in the State of Illinois, and the post office address of its business office is at No. 18 East Division Street in the said City of Chicago.

(Signed) Mae B. Cameron, Ravenswood Hospital, Chicago, Ill.
Maud Lane, Englewood Hospital, Chicago, Ill.
Anna Willenborg, 18 E. Division St., Chicago, Ill.

STATE OF ILLINOIS }
Cook County } SS

I, Emma A. Schmidt, a Notary Public in and for the County and State aforesaid, do hereby certify that on this 11th day of October, A.D. 1939, personally appeared before me Mae B. Cameron, Maud Lane and Anna Willenborg, to me personally known to be the same persons who executed the foregoing certificate, and severally acknowledged that they had executed the same for the purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year above written.

(SEAL) (Signed) EMMA A. SCHMIDT
Notary Public

Filed Oct. 17, 1939, Edward J. Hughes, Sec'y of State

CERTIFICATE NUMBER 8967
STATE OF ILLINOIS
OFFICE OF THE SECRETARY OF STATE

To all to whom these Presents Shall Come, Greeting:

Whereas, a Certificate, duly signed and acknowledged, has been filed in the Office of the Secretary of State on the 17th day of October, A.D. 1939, for the organization of the AMERICAN ASSOCIATION OF NURSE ANESTHETISTS under and in accordance with the provisions of "An Act Concerning Corporations" approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof a copy of which certificate is hereto attached:

Now Therefore, I, Edward J. Hughes, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said American Association of Nurse Anesthetists is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois. Done at the City of Springfield this 17th day of October, A.D. 1939, and of the Independence of the United States the one hundred and sixty-fourth.

(signed) EDWARD J. HUGHES
(SEAL) Secretary of State

BY-LAWS OF THE AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

ARTICLE I

MEMBERSHIP

Section 1. Membership in this Association shall be by State or Sectional Association and Individual.

Section 2. *State or Sectional Divisions:*

Any association of Nurse Anesthetists, formed in any state of the United States or any Sectional Association composed of members who are Nurse (women) Anesthetists in two or more states, may become affiliated with the American Association of Nurse Anesthetists in the State or Sectional Association Division provided:

a. That the requirements and standards for membership in the State or Sectional Association correspond in all respects to the requirements and standards for individual membership in the American Association of Nurse Anesthetists.

b. That the State or Sectional Association agrees to accept, without reservation, the requirements of the By-Laws of the American Association of Nurse Anesthetists and cooperate fully with the American Association of Nurse Anesthetists in the purpose for which it was formed.

c. That the State or Sectional Association pay into the Treasury of the American Association of Nurse Anesthetists annual dues in the amount as specified under Article XII, Sections 3 and 4, for every member appearing on its roll during the time that such State or Sectional Association is affiliated as a member of the American Association of Nurse Anesthetists. Each applicant for membership in the American Association of Nurse Anesthetists shall pay an initiation fee in the amount as specified under Article XII, Section 2, said fee to accompany the application.

Section 3. Each member of a State or Sectional Association which has become affiliated with the American Association of Nurse Anesthetists shall be, by virtue of her membership in said State or Sectional Association, a member of the American Association of Nurse Anesthetists, and shall be entitled to all the rights and privileges of the American Association of Nurse Anesthetists, subject to the same qualifications and restrictions which apply to all members.

Section 4. Any State or Sectional Association desiring to become affiliated in the State or Sectional Division of this Association shall make application on the form approved by the Board of Trustees of the American Association of Nurse Anesthetists and furnished to such applicant by the Executive Secretary.

Such application shall be submitted by applicant provided the application is executed pursuant to the affirmative vote of a majority of the members entitled to vote in such State or Sectional Association at a meeting called for such purpose.

The application with a copy of the Constitution and By-Laws shall be sent to the Executive Secretary of the American Association of Nurse Anesthetists.

Section 5. In no event shall the American Association of Nurse Anesthetists be liable for debts or obligations of any kind whatsoever, incurred by any State or Sectional Association which may be affiliated with the American Association of Nurse Anesthetists except such obligations as may be expressly entered into and authorized by the Board of Trustees of the American Association of Nurse Anesthetists.

Any State or Sectional Association which fails to comply with the By-Laws and Standing Rules of the American Association of Nurse Anesthetists may be dropped as an affiliate member by a unanimous vote of the Board of Trustees, providing due notice to comply has been given at least three months before the vote is taken and during which time said Association has failed to act in accordance with these requirements.

ARTICLE II

APPLICATION OF THE TERM "STATE"

The term "State" in these By-Laws shall be understood to apply equally to any State in the United States of America, to the District of Columbia

or to any territory, possession or dependency of the United States of America and the rights, privileges, responsibilities, and obligations of all members in the States, the District of Columbia, the territories, possessions or dependencies shall be the same.

ARTICLE III

DUTIES OF STATE AND SECTIONAL ASSOCIATIONS

Section 1. It shall be the duty of each State and Sectional Association:

a. To require that its members have the qualifications as enumerated in Article V of these By-Laws.

b. To send to the *Chairman* of the *Publishing Committee* and to the Executive Secretary of this Association the names and addresses of all Officers and Committee Chairmen immediately after their election or appointment.

c. To adopt and keep in force, By-Laws consistent with the By-Laws of this Association; to refrain from adopting any changes or modifications in its By-Laws without first obtaining the written approval of the Committee on Revision of this Association; to keep on file with this Association at all times, a complete and up-to-date copy of its Constitution and By-Laws.

d. To comply with all the provisions of these By-Laws.

e. To report to the Board of Trustees of this Association as required.

ARTICLE IV

TRANSFERS

Section 1. A member who changes the location of her employment from the state through which she holds membership in the American Association of Nurse Anesthetists to another state in which there is a state organization, is eligible to membership in the State Association of her new location on the presentation of a transfer card and an official statement that her dues have been paid in full in the Association in which she holds membership, provided that no evidence which would otherwise disqualify her for membership arises.

Section 2. A transfer shall be effected by requesting a 'Transfer Card' from the Secretary of the State Association of Nurse Anesthetists of which you are a member, and by presenting said card to the Secretary of the State Association of Nurse Anesthetists to which you wish to be transferred.

ARTICLE V

INDIVIDUAL MEMBERSHIP AND STATE MEMBERSHIP

Section 1. *Applications:*

a. Applications for individual membership shall be in writing, addressed to the Executive Secretary on blanks approved and provided by the American Association of Nurse Anesthetists.

b. The initiation fee, the amount as specified under Article XII, Section 2, shall accompany the application.

c. All applications shall be referred by the Executive Secretary to the Membership Committee of the American Association of Nurse Anesthetists, which shall carefully investigate and consider the professional and personal qualifications of all applicants. Upon the findings of this Committee the applications shall be approved or rejected.

d. Applicants for membership in the organized State Association shall be notified of their acceptance or rejection by the Secretary or Secretary-Treasurer of the State Association through which they make application, after said State officer has been duly notified by the Executive Secretary of the decision of the Membership Committee of the American Association of Nurse Anesthetists.

e. Applicants for membership from unorganized States shall be notified of their acceptance or rejection by the Executive Secretary of the American Association of Nurse Anesthetists.

f. Applicants who have been notified of their acceptance are requested to pay the required annual dues within thirty (30) days after notification. Unless for satisfactory reasons, applicant does not pay dues within ninety (90) days after notification, she shall forfeit her right to membership and must re-apply as a new member or pay dues from the day following the thirty (30) days of her notification. All applicants shall be informed to this effect when notified of their acceptance.

Section 2. *Classification:*

Membership in the American Association of Nurse Anesthetists shall consist of three classes: Active, Associate, Honorary.

Section 3: *Active Membership:*

An applicant for active membership shall meet the following requirements:

a. Graduation from an accredited School of Nursing.

b. State Registration.

c. Annual renewal of registration if so required in the state in which she is registered.

d. An applicant who has been graduated from a recognized School of Anesthesia giving not less than the minimum six (6) months' course shall upon completion of her course, be eligible for active membership.

e. An applicant who has not been graduated from a special course in the administration of anesthetics, but has been engaged in the giving of anesthetics in approved hospitals for a period of six (6) consecutive years prior to 1939, may upon the presentation of the required credentials as approved by the Board of Trustees apply for active membership. Said applicant must be engaged in the administration of anesthetics when application for membership is made.

f. An applicant who has had less than a six (6) months' course in the administration of anesthetic drugs prior to 1939, does not qualify for membership in this Association, until she has had three (3) consecutive years of experience in approved hospitals with an additional year's experience being required *each new year*, beginning January 1, 1942. Said applicant may upon presentation of required credentials as approved by the Board of Trustees apply for active membership. Applicant must be engaged in the administration of anesthetics when application is made.

g. On and after Jaunary 1, 1941, applicants for active membership must meet the requirements as specified in the Revised Curriculum approved by the Board of Trustees.

h. Any nurse having been graduated from an Accredited School of Nursing on or after January 1, 1940, shall not be eligible for membership in the American Association of Nurse Anesthetists unless she has taken the course in the administration of anesthetics as approved by the Board of Trustees.

i. Any member who is no longer engaged in the administration of anesthetics but who was accepted as an active member, may retain her membership as such with the rights and privileges of all active members, as long as she conforms with the rules of the Association

Section 4. *Associate Membership:*

a. If a member is no longer actively engaged in the administration of anesthetics and has retired because of age, physical disability, or has changed her service or married, she is eligible for associate membership upon re-application for such classification.

b. An active member in good standing who for satisfactory reasons, such as illness or absence from the United States for a period of not less than one (1) year may during this time, upon request, be placed on the inactive list.

c. An associate member who, at the time of her application was eligible for active membership but, for satisfactory reasons, desired associate membership, later requesting active membership, must make application for active classification and pay the required $2.00 initiation fee.

d. An associate member, who was approved as an active member and paid dues as such, but for satisfactory reasons became an associate member and again desires active membership after a period of more than two years, must re-apply for active membership.

e. A special blank, or questionnaire giving reasons for requesting associate membership, shall be provided by the Executive Secretary to

active members who desire to become associate members.

f. Associate members shall be privileged to attend all meetings of the Association; they may have a voice but shall not have the right to vote or hold office.

g. No nurse actively engaged in the administration of anesthetics, except for reasons as stated in Article V, Section 4, a and b, shall be entitled to associate membership.

Section 5. *Honorary Membership:*

Honorary membership may be conferred by a unanimous vote of the voting body at any annual meeting on persons who have rendered distinguished service in Anesthesiology or to the American Association of Nurse Anesthetists, the names having been recommended by the Board of Trustees. Members of the American Association of Nurse Anesthetists elected to an honorary office or membership, shall have all the rights and privileges of the Association but shall be exempt from payment of dues. Non-members elected to an honorary office or membership shall have all the rights and privileges of the Association except that they shall not be entitled to hold office or vote and shall be exempt from the payment of dues.

Article VI

DONORS AND BENEFACTORS

Contributors to the American Association of Nurse Anesthetists of sums not less than One Hundred ($100.00) Dollars shall be known as Donors and such contributors of Five Hundred ($500.00) Dollars or more shall be known as Benefactors.

The names of all such contributors shall be recorded in the annals and history of the American Association of Nurse Anesthetists.

Article VII

BOARD OF TRUSTEES

Section 1. The President, Vice-President, Treasurer, and five other active members of the Association shall constitute the Board of Trustees. The President shall be the Chairman of the Board of Trustees.
Section 2. The election of the Trustees shall be held at the Annual Meeting of the Association. They shall serve for a period of three (3) years each.

Section 3. Regular meetings of the Board of Trustees shall be held immediately preceding and immediately following each Annual Meeting of the Association at the place where such Annual Meeting shall be held.

Special meetings of the Board of Trustees may be called by the President at such times as the business of the Association may require or upon written request of five (5) members of the Board of Trustees. Notices of special meetings shall state the object for which they are called.

Article VIII

DUTIES OF BOARD OF TRUSTEES

Section 1. *The Board of Trustees shall:*

a. Have the control and management of the business, funds and property of the Association.

b. Select a place for deposit of funds.

c. Promulgate and enforce rules governing the use of the property and funds of the Association and have such other powers with respect to the activities of the Association as may be conferred by the members by resolution enacted at any regular or special meeting and shall further have such other powers as are incidental and necessary to the carrying out of the foregoing powers.

d. Transact the general business of the Association in the interim between Annual Meetings.

e. From time to time make and change rules and regulations not inconsistent with the Articles of Incorporation and By-Laws for the management of the Association business and affairs as indicated.

f. Adopt rules for the conduct of its own business.

g. Pass upon the applications of State or Sectional Associations who wish to become affiliated with the American Association of Nurse Anesthetists.

h. Establish rules and procedure for the various committees and for the discipline of members of the committees.

i. Determine all matters of policy concerning the curriculum and general set-up for the Schools of Anesthesia and make final decisions as to

which of these schools shall be placed upon the approved list.

j. All matters requiring action by the Board of Trustees between its meetings may be voted upon by mail provided that notice of such proposed action is given each member.

k. Fill vacancies in its own membership or among officers of the Association until the next election.

l. Appoint a member of the Association to act as Executive Secretary for such term as they may deem advisable to designate, define her duties except as herein provided, fix her compensation and remove said Executive Secretary for any reason sufficient to the Board for such action.

m. At each Annual Meeting of the Association present a report of its work for the year with recommendations.

n. The Board of Trustees may formulate rules governing the expenditure of money to meet the necessary running expense and fixed charges of the Association, as well as such rules governing its own actions as it may deem necessary or desirable.

o. Definite outline of rules shall be presented to each member of the Board.

p. At the expiration of her term of office, each member of the Board shall within one (1) month, turn over to the President or to her successor in office or as directed by the President, all minutes of the meetings of the Board and any other material or correspondence of the Association in her possession.

Article IX

ADVISORY COUNCIL

Section 1. The State Officers and all Standing Committees constitute an Advisory Council to consider and promote the interests of the American Association of Nurse Anesthetists.

Section 2. The duties of the members of the Advisory Council shall be to keep the American Association of Nurse Anesthetists informed of the progress and activities of the States and Committees which they represent and to cooperate with the American Association of Nurse Anesthetists in all matters pertaining to the Association.

Section 3. The Advisory Council shall discuss all matters of importance concerning State Associations and these Committees and present recommendations for consideration of the Board.

Section 4. In the event of the inability of any officer of a State Association to attend meetings, an alternate shall be appointed by the State Association to represent the organization on the Advisory Council.

Section 5. In the event of her inability to attend meetings, the Chairman may appoint a member of her Committee to represent her on the Advisory Council.

Section 6. Meetings of the Advisory Council shall be held in connection with each Annual Meeting, at such times as shall be designated in the Program and at such other times during the Annual Convention as shall be determined by the Board of Trustees.

Article X

OFFICERS

Section 1. The Officers of this Association shall be a President, Vice-President, Treasurer and Historian.

Section 2. *Terms of Office:*

a. The President shall be elected for a term of one year and is eligible for a second term.

b. The Vice-President shall be elected for a term of one year and is eligible for a second term.

c. The Treasurer shall be elected for a term of one year and is eligible for re-election.

d. The Historian shall be appointed by the Board of Trustees and hold office for such term as is designated by the Board of Trustees.

Section 3. No member shall be eligible for the office of President who has not served on the Board of Trustees for at least one (1) year.

Section 4. No member shall hold office in the American Association of Nurse Anesthetists and at the same time hold office in a State or Sectional Association.

Article XI

DUTIES OF OFFICERS

Section 1. *The President shall:*

a. Preside at the Annual Meeting of the members of the Association, at all meetings of the Board of Trus-

tees, Advisory Council and Executive Committee.

b. Appoint all Standing and Special Committees with the approval of the Board of Trustees.

c. Be a member ex-officio of all Committees except the Nominating Committee.

d. Countersign all checks.

e. Prepare and read at each Annual Meeting of the Association and at the regular Annual Meeting of the Board a condensed narrative report of the work of the year.

f. On the first day of the Annual Meeting, appoint the necessary tellers and inspectors of election.

g. Perform all other acts and duties of a general nature as may be incident to her office and as may be, from time to time, required of her by the Board of Trustees.

Section 2. The Vice-President shall perform all of the duties of the President in the event of the latter's absence, disability, resignation, removal from office, or death.

Section 3. *The Executive Secretary shall:*

a. Be appointed by and hold office for such term as shall be designated by the Board of Trustees.

b. Work under direct supervision of the Board of Trustees.

c. Be available for all meetings of the Board of Trustees; attend the meetings of the Board of Trustees at such time as requested and stated by the Board of Trustees; attend meetings of the Advisory Council, Executive Committee. and such committees as directed by the Board of Trustees.

d. Be kept informed of the work of the State and Sectional Associations and of the Standing and Special Committees.

e. Sign membership cards of all members who have been elected to membership in the Association.

f. Keep an alphabetical list of members and of the personnel of Committees.

g. Submit a report at the Annual Meeting of the members and the Board of Trustees and at such times as may be requested of her by the President or Board of Trustees and generally perform such duties as may be required of her by the Board of Trustees.

Section 4. *The Treasurer shall:*

a. Collect and receive all monies of the Association, pay all bills and disburse funds as directed by the Board of Trustees.

b. Deposit funds in banks designated by the Board of Trustees.

c. Be bonded for such sum as the Board of Trustees shall direct, the expenses of same to be paid by the Association.

d. Notify individual members in arrears of dues.

e. Keep the Executive Secretary informed regarding the delinquent members.

f. Report to the Board of Trustees the financial standing of the Association at each annual meeting and upon request.

g. Perform all such other and further duties as may be required of her by the President or Board of Trustees.

h. The Treasurer's books shall be audited previous to the Annual Meeting by a certified public accountant.

i. At the expiration of her term of office, the Treasurer shall deliver all moneys, property and rights of the Association in her hands to her successor in office or to the President.

Section 5. *The Historian shall:*

Present at the Annual Meeting of the members of the Association a written history of the current year which will include such interesting events in the life of the Association and its members as will contribute to the historical background of the American Association; such record to be in duplicate, one copy to be placed in a loose-leaf history record book and passed on to her successor, and the other to be kept in the archives of the Association.

ARTICLE XII

FINANCE

Section 1. All initiation fees and dues shall be payable in advance.

Section 2. Initiation fee of Two ($2.00) Dollars must accompany application.

Section 3. The annual dues for active membership shall be Six ($6.00) Dollars, first dues payable within

thirty (30) days following notification of election to membership and thereafter due and payable in full to the Treasurer immediately following the Annual Meeting.

In the organized states:

Two ($2.00) Dollars per capita to be retained by the State Association.

Four ($4.00) Dollars per capita to be transferred to the American Association of Nurse Anesthetists.

Section 4. The annual dues for associate membership shall be Three ($3.00) Dollars, first dues payable within thirty (30) days following notification of election to membership, and thereafter due and payable in full to the Treasurer immediately following the Annual Meeting.

In the organized states:

One Dollar and Twenty-five Cents ($1.25) per capita to be retained by the State Association.

One Dollar and Seventy-five Cents ($1.75) per capita to be transferred to the American Association of Nurse Anesthetists.

Section 5. The State Associations or Sectional Associations shall be responsible for collecting all dues from their members and shall send the required per capita dues to the Treasurer of the American Association of Nurse Anesthetists with the prescribed remittance sheet.

Section 6. Individual members located in unorganized states shall send the required annual dues direct to the Treasurer of the American Association of Nurse Anesthetists.

Section 7. Applicants who were notified of their acceptance after July 1 of the year in which application is made, shall, upon payment of their first annual dues within thirty (30) days after notification of acceptance, be exempt from further annual dues until September 1 of the ensuing year.

Section 8. Members failing to pay dues by January 1 shall be notified by the Treasurer, and those delinquent on April 1, unless satisfactory arrangements are made for the payment of dues, shall forfeit all rights to membership and their names shall be taken from the roll of membership.

Section 9. Members who have been dropped for non-payment of dues may be reinstated upon payment of dues accruing at time of suspension.

Section 10. If two (2) or more years have elapsed since a member has been in good standing, she must make application as a new member.

Section 11. The names of the members in good standing shall be published each year in the August issue of the Bulletin.

Section 12. *Registration Fee.*

All members of the Association attending the Annual Meeting shall pay a registration fee in such amount as may be determined by the Board of Trustees, notice of which shall be included in the call for the Annual Meeting.

Section 13. *Fiscal Year.*

The fiscal year of this Association shall be from September 1 to August 31, inclusive.

Article XIII

ANNUAL MEETING

Section 1. The regular Annual Meeting of the members of the Association shall be held each year concurrently with the American Hospital Association at the time and place designated by the American Hospital Association.

Section 2. The time and place of the Annual Meeting shall be announced in the Bulletin of the American Association of Nurse Anesthetists.

Article XIV

QUORUM

Section 1. Seventy-five (75) members shall constitute a quorum for the transaction of business at any Annual Meeting of the members of the Association, provided at least ten (10) states are represented by members entitled to vote.

Section 2. A majority of the members of the Board of Trustees shall constitute a quorum for the transaction of business at any regular or special meeting of the Board of Trustees.

Section 3. Ten (10) members of the Advisory Council shall constitute a quorum for the transaction of business at the meetings of the Advisory Council.

ARTICLE XV

STANDING COMMITTEES

Section 1. The following Standing Committees shall be appointed by the President subject to the approval of the Board of Trustees, to serve for the term of one (1) year and until their respective successors are appointed. They shall consist of not less than three (3) members each:

Membership
Revisions
Publication
Public Relations
Nominating
Curriculum
Educational
Educational Exhibit
Educational Correlating Committee
Program
Convention Arrangements
Finance
Trust Fund
Executive

Section 2. Special Committees may be created by the President subject to the approval of the Board, to perform special functions for which they are created.

Section 3. In case of vacancies in Committees occurring during the intervals between Annual Meetings, the President shall have the power to appoint active members to fill the vacancies until the next Annual Meeting unless otherwise provided for in these By-Laws.

Section 4. Committees of the American Association of Nurse Anesthetists shall be under the control of the Board of Trustees. No member can serve on more than one committee at any one time, unless the activities impinge upon two committees.

Section 5. Rules and regulations shall be devised by the Board of Trustees for all Committees.

Section 6. The Chairman of each Committee shall send to the President copies of all important letters and other matters transacted or sent out by these Chairmen to be presented to the Board if the President deems it necessary. The Chairman of each Committee shall be responsible for rendering a quarterly report to the Board of Trustees and a full report of the activities of the year to the Board at its pre-convention Annual Meeting and at the business meeting of the membership. A special report of the activities of any one committee shall be made upon request of the President at any time.

Section 7. Any member of a Committee who fails to fulfill duties as assigned to her shall be liable to dismissal upon approval of the majority of the Board of Trustees. The vacancy shall be filled by the President upon the approval of the Board of Trustees.

Section 8. The retiring Chairman of each Committee shall within one month after the close of the Annual Meeting, deliver to her successor all papers necessary to carry on the function of this Committee.

Section 9. *Membership Committee.*

a. This Committee shall check the qualifications of the applicants applying for membership according to the requirements of the By-Laws, and if sufficient data is not furnished on the application form, shall secure such data by correspondence.

This Committee shall determine the eligibility of the applicants and make its recommendations and notify the Executive Secretary of its decisions.

b. Due to error or misrepresentation, the Membership Committee shall, subject to the approval of the Board of Trustees, have the power to rescind its action relating to the status of any member.

Section 10. *Revisions Committee.*

a. The Constitution and By-Laws of any State or Sectional Association applying for affiliate membership with the American Association of Nurse Anesthetists shall be referred to this Committee for their consideration and investigation as to the conformity in all respects with the Articles of Incorporation and By-Laws of the American Association of Nurse Anesthetists.

b. This Committee shall receive all proposed amendments to the By-Laws of this Association and report its findings and recommendations to the Board of Trustees for their approval. Such amendments shall be submitted for action to the Assembly at the Annual Meeting.

c. Proposed amendments to the Constitution and By-Laws of all

State or Sectional Associations shall, before they are adopted by the State or Sectional Associations, be submitted to the Revisions Committee of the American Association of Nurse Anesthetists for suggestions and approval for the purpose of keeping them in harmony and conformity with the By-Laws of the American Association of Nurse Anesthetists.

d. The Executive Secretary shall be a member ex-officio of this Committee.

Section 11. *Publication Committee.*

a. The Committee on Publications shall cause to be published, subject to the approval of the Board of Trustees, such periodicals, bulletins and other publicity material as will assist in the general purpose of the organization.

b. This Committee may be enlarged at the discretion of the Board of Trustees, upon proper presentation to said Board, that such will facilitate the work of the Committee and contribute to the interest of the Association.

c. This Committee shall carefully check all magazines and journals publishing material of interest and reference to anesthesia and publish author, name of article, date and journal in the current issue of the Bulletin.

d. No paper shall be published in the minutes or in any magazine or paper as a part of the transactions of this Association except with the approval of the Board of Trustees. All papers read at any session of the Association or its State or Sectional Associations shall become the property of the Association, and when so requested, the Board of Trustees may cause same to be copyrighted in the name of the Board of Trustees; but unless prohibited by the Board of Trustees, the authors of all papers read at sessions of the Association or its State or Sectional Associations may cause the same to be published and if approved by the Board of Trustees, they may be published as a part of the transactions of the Association. No paper or magazine shall be entitled to the exclusive publication of any paper read before the Association or its sessions except by vote of the Board of Trustees.

Section 12. *Public Relations Committee.*

a. This Committee shall study the existing laws of the various states dealing with anesthesiology, and shall, at all proper times, report and make recommendations to the Board of Trustees regarding such laws.

b. Study conditions affecting anesthetists generally and shall make recommendations to the Board of Trustees for the protection of the professional rights of the members of the Association and the public.

c. Assist in the establishment of a Committee on Public Relations in each State or Sectional Association and work with the officers of the State and Sectional Associations and these Committees in furthering the objectives for which these Committees were formed.

d. Have advisory responsibility on educational problems involving legislation.

e. Further perform such other duties as may be designated from time to time by the Board of Trustees.

f. The Chairman of this Committee shall have charge of and preside at the Annual Advisory Council meeting.

Section 13. *Nominating Committee.*

a. This Committee shall prepare a ballot for each Annual Meeting consisting of one or more active members for each office, qualified to hold office, and who have consented to serve if elected to the office for which they have been nominated.

b. On or before each January 1, preceding the Annual Meeting, this Committee shall issue to each State or Sectional Association a form on which the State or Sectional Association shall submit the name of one nominee for each office to be filled. This form shall be signed by the President or Secretary of the State or Sectional Association and be returned to the Committee on Nominations of the American Association of Nurse Anesthetists before May 1, preceding the Annual Meeting.

c. On or before May 1 of each year the Committee on Nominations shall prepare from the list of names submitted, a ballot of one or more nominees, who are active members qualified to serve. If the names of

nominees submitted by State or Sectional Associations do not meet the necessary qualifications, the Committee on Nominations shall have power to substitute names of nominees with the proper qualifications. The final draft of ballot shall be sent to the Board of Trustees through its Chairman not later than June 1 of each year, and such draft, after study, shall be returned by Chairman of Board to Chairman of Nominating Committee. The Nominating Committee shall then contact these members for their consent to serve if elected.

d. No names shall be presented to the Committee on Nominations or from the floor unless the nominee has consented and is free to serve if elected.

Section 14. *Curriculum Committee.*

The work of this Committee shall include the study and presentation of the curriculum for Schools of Anesthesia and any other activity as approved by the Board of Trustees.

Section 15. *Educational Committee.*

The Committee on Education shall consist of not less than five (5) members. This Committee shall assist in the development of educational standards in accordance with plans approved by the Board of Trustees and such other educational projects as may be authorized by the Board of Trustees.

Section 16. *Educational Exhibit Committee.*

The Educational Exhibit Committee shall be responsible for the educational exhibit booth at the Annual Meeting.

Section 17. *Educational Correlating Committee.*

The Chairman of the Committee on Education shall officiate as Chairman of the Educational Correlating Committee. The Chairman of the Curriculum Committee, Chairman of the Committee on Education and Chairman of the Educational Exhibit Committee shall constitute the Educational Correlating Committee. This Committee shall correlate the work of the three Committees they represent and shall be responsible for the Educational Department of the official Bulletin.

Section 18. *Program Committee.*

The Program Committee shall in conference with the President and Executive Secretary and with the approval of the Board of Trustees, prepare a complete program for the Annual Meeting. This Committee shall be responsible for all correspondence unless otherwise instructed and shall submit a draft of the program to the Executive Secretary not later than May 15th. At least thirty (30) days before issue of the August Bulletin, the Executive Secretary shall send to the Chairman of the Publishing Committee a copy of the official program.

Section 19. *Convention Arrangements Committee.*

This Committee shall be responsible for the plans to be followed in carrying on the Annual Meeting by making arrangements for suitable places for general and committee meetings, hotel accommodations and general information, the Chairman, if possible, to be a resident of the city in which the Annual Meeting shall be held.

Section 20. *Finance Committee.*

The Committee on Finance shall advise as to the expenditure of funds, prepare a budget of expense for each year and report same and all other matters of Finance to the Board of Trustees. The Treasurer shall, by virtue of her office, serve as a member of the Finance Committee.

Section 21. *Trust Fund Committee.*

This Committtee shall be composed of three (3) members, one of whom shall be the Treasurer. This Committee shall promote interest and secure contributions for the Trust Fund of the American Association of Nurse Anesthetists and be responsible that the rules and regulations are carried out as to the expenditure of the money in said Trust Fund.

Section 22. *Executive Committee.*

The President, Vice-President, Treasurer and one other member of the Board of Trustees appointed by the Board at the Annual Meeting shall constitute an Executive Committee to act between meetings of the Board of Trustees. No action taken by the Executive Committee shall be effective unless ratified by the Board of Trustees. Action of the

Executive Committee shall be limited to matters previously authorized by the Board of Trustees. At least two meetings of the Executive Committee shall be held at headquarters during the year and at such times as the development and needs of the Association indicate.

Article XVI

NOMINATIONS AND ELECTIONS

Section 1. All active members in good standing present at the regular Annual Meeting shall be entitled to vote at all elections of officers and trustees.

Section 2. No member whose dues have not been paid at the time of the Annual Meeting shall be entitled to vote at the Annual Meeting.

Section 3. Any member not in good standing on April 1 next preceding an election shall be ineligible to receive nomination for any office.

Section 4. No nominee shall be presented at any Annual Convention Meeting either by the Committee on Nominations or from the floor without a statement of her qualifications and her consent to serve if elected.

Section 5. Election shall be by ballot. A majority vote is necessary to elect.

Article XVII

CONDUCT OF MEMBERS

If the conduct of any member shall appear to be in willful violation of the Articles of Incorporation and By-Laws of this Association, or prejudicial to the Association's interests, the Board of Trustees may, by the affirmative vote of two-thirds (2/3) of the entire Board, suspend or expel such member. Before taking such action, also a written copy of the charges must be served upon the member and an opportunity given to be heard before the Board of Trustees in defense. A motion to reconsider the suspension or expulsion of a member may be made at the next regular meeting of the Board of Trustees but not thereafter.

Article XVIII

AMENDMENTS

Section 1. The Articles of Incorporation and By-Laws may be amended, modified or abolished at any Annual Convention Meeting by a two-thirds (2/3) vote of those present and qualified to vote, provided notice of the proposed amendment, modifications or resolution for abolishment has been placed in the hands of the Executive Secretary, two (2) months prior to the Annual Meeting. Any such proposal to amend, abolish or modify shall be appended to the notice of the Annual Meeting of the Association.

Section 2. Standing Rules may be amended or rescinded by a two-thirds vote, unless notice was given at previous meeting or in the call for the meeting when they may be amended or rescinded by a majority vote.

Article XIX

PARLIAMENTARY AUTHORITY

"Robert's Rules of Order—Revised" shall be the authority for this Association, where not stated in the Articles of Incorporation or By-Laws.

Article XX

OFFICIAL ORGAN

The Bulletin of the American Association of Nurse Anesthetists shall be the official organ of this Organization.

STANDING RULES

The order of business at the Annual Meeting shall be:

Call to Order
Reading of Minutes
Roll Call
Reports of Officers
Reports of Special Committees
Reports of Standing Committees
Unfinished Business
New Business
Announcements
Program
Adjournment

OFFICERS ELECTED
1941-1942

ROSE G. DONAVAN

President

Helen Lamb
Barnes Hospital, St. Louis, Mo.

Vice-President

Rosalie C. McDonald
Emory University Hospital.
Emory University, Ga.

Treasurer

Gertrude L. Fife
University Hospitals of Cleveland

Trustees:

Rose G. Donavan
Agatha C. Hodgins (permanent Trustee)

ESHTER MYERS
New Orleans

ROSALIE MCDONALD
Georgia

THE PRESENT-DAY SPHERE OF THE NURSE ANESTHETIST

VERNE C. HUNT, M.D.
Los Angeles, California

Read at the seventh annual convention of the Mid-South Postgraduate Nurse Anesthetists' Assembly, Memphis, Tennessee, February 12-13, 1941.

At this time and in this place it is entirely unnecessary to review even briefly the history of anesthesia and the various phases through which anesthesia has progressed to its present station; but I may remind you that as medicine in general is curiously indebted to non-medical men for many of its innovations, so is anesthesia a science to which others than Doctors of Medicine have contributed materially. New instruments and the majority of medical discoveries have not been made suddenly and completely, but have been preceded by preliminary and progressive steps. In many instances the preliminary work was done and at times the actual discoveries were made by the layman, and later adopted and perfected by the medical man, but usually with the aid of the pharmacist, chemist, physicist, botanist, craftsman, technician, nurse, and a host of others. Professional progress is somehow or another the result of a stimulus from without. Professional progress has resulted not entirely but in a large measure from utilizing something—sometimes little and at other times much—from every field of human endeavor. It would be extremely difficult indeed, if not entirely impossible, to single out any particular phase of medical progress for which the man of medicine was solely and alone responsible. The same is true in the daily ministrations by the Doctor of Medicine in the practice of his profession. The very nature of his profession is such, irrespective of the breadth that he as an individual may encompass, that he is dependent upon members of other professions and vocations, and laymen in general. Of the various professions, it is upon the members of the nursing profession that he is most dependent.

As medicine has progressed, so has advancement occurred in the profession of nursing. As the curriculum of the medical school has been broadened and dredged to greater depths, so has the same occurred in the nurses' training schools of the land. As the prerequisite educational attainments of the individual aspiring to fellowship in the medical profession have been advanced during recent years, so have those requirements been advanced for admission to the schools for the training of nurses. In other words, medical education and the training of nurses have advanced hand in hand. The training of the nurse is so thorough in the basic sciences and in clinical medicine that in the every-day practice of her profession she now performs certain duties which formerly were performed only by Doctors of Medicine. As specialization has occurred in medicine, so has it occurred in the nursing profession, which has facilitated the delegation of certain duties and responsibilities in a specialty to the highly trained nurse. The specialty of anesthesia is one to which the trained nurse is particularly adapted.

It is maintained in certain quarters that no one but a Doctor of Medicine should administer anesthetics. Everyone will graciously grant that there are two sides to this question. However, so far as I know, wherever the legality of that question has been thoroughly

tested in a court of law, the court has held that the nurse is not practicing medicine when she is administering an anesthetic under the supervision of or at the direction or request of a licensed Doctor of Medicine. A few years ago, when this question was before the courts in California, my testimony included the statement that, "the dividing line between the practice of medicine and the practice of nursing to my knowledge has never been definitely and accurately established; that as a surgeon I cannot tell where the practice of nursing ends and the practice of medicine begins; that many things are done today in the practice of nursing which in the past were considered the practice of medicine."

To my mind the question as to whether or not a nurse is practicing medicine when she is giving an anesthetic under the supervision of or at the direction of a licensed Doctor of Medicine is a minor one, for in the last analysis the surgeon carries the legal and moral responsibility for the duties of the anesthetist, nurse or Doctor of Medicine, as he carries it for the acts of everyone associated with him in the management of the condition for which the anesthetic is necessary. To my mind the important question pertaining to anesthesia is that of the quality of its administration. To the Doctor of Medicine who interests himself in the field of anesthesia, who is desirous of advancing the science of anesthesia and who will train others in the administration of the various anesthetic agents, all credit, coöperation and enthusiastic support and encouragement are due, and I shall sustain him in his ambitions to my full capacity. However, I cannot and will not support the idea that only a Doctor of Medicine may give inhalation anesthetics or the idea that by virtue of his possession of the degree of Doctor of Medicine he is qualified to use the various anesthetic agents. The Doctor of Medicine who has not had special postgraduate training in the administration of the various anesthetic agents, is no more competent today to use one or another of the agents than is the Doctor of Medicine untrained in surgery competent to perform surgical operations on the living subject. As proficiency may be attained by the Doctor of Medicine through postgraduate training, so may the nurse exhibit her latent talents through postgraduate training in some particular field for which she is peculiarly and particularly fitted. It happens that anesthesia is a field in which many nurses have exhibited unusual talent, and many of them through their large experience and through the training of others in anesthesia, have contributed much to the high station which the anesthetist occupies today.

One cannot let pass the opportunity of paying tribute to those women in the early days of the Mayo Clinic and of the Lakeside Clinic in Cleveland, among others, who not only as nurses administered anesthetics, but who were instrumental in establishing schools of anesthesia for nurses from which other schools emanated. I do not believe that any other individual, within or without the medical profession, had had the experience at that time that formed the basis of a paper by a nurse, the late Alice MacGaw, published in *Surgery, Gynecology and Obstetrics* in 1906, which dealt with her personal experience in more than fourteen thousand anesthetics. The worth of her admonitions and critical appraisal of inhalation anesthesia and methods of administration of that day, is attested by verbatim quotations from that paper which occupy two pages in the 1910 edition of the Lexer-Bevan Text Book on Surgery. This same nurse was frequently spoken of by the late Dr. Charles H. Mayo as the "Mother of Anesthesia." One may graciously and with gratitude

pay tribute to Miss Agatha Hodgins, for years associated with Dr. George W. Crile in his work, for organizing in 1911 the Lakeside School of Anesthesia, from which so much of value has emanated.

As one whose surgical career was founded in an institution where for many years all inhalation anesthetics were given by nurse anesthetists, and as one who throughout the years has continued to have inhalation anesthetics administered by a nurse anesthetist, I believe that as I may have had something to do with maintaining and enhancing the status of nurse anesthetists, they have likewise had much to do with rearing me surgically, for which I continue to feel grateful.

Many problems of the surgeon pertaining to anesthesia have been solved through the training of nurses in the administration of inhalation anesthetics. There has been much in the past in the administration of various anesthetic agents that has not always been to the credit of anesthesiology, and I regret that some of the practices of the past are in some quarters not yet outmoded. I refer particularly to the practice of encouraging, inviting and allowing the general practitioner, or the doctor who refers the patient, to administer the anesthetic, that he may be in on the case, so to speak. I refer also to the practice of allowing recent graduates in medicine and new interns to administer anesthetic agents without supervision before having had postgraduate training in anesthesiology, just because they are in possession of the recently acquired degree of Doctor of Medicine. Certainly they must learn to administer anesthetics, but today there is available to those who seek it an orderly postgraduate course in anesthesiology as there is in all other specialties of medicine. To the credit of nurse anesthetists there are, to my knowledge, few if any nurses engaged in the administration of surgical anesthesia who have not received postgraduate training in one or another of the schools for the training of nurse anesthetists. The trained nurse anesthetist, wherever she has been provided the opportunity and allowed to exhibit her talents, has materially elevated the general level of the practice of anesthesiology.

It is quite appropriate to ask the question, "What are the reasonable and logical limitations which exist or which may be placed upon the nurse in the administration of anesthetic agents?" It is, of course, understood that the nurse anesthetist is administering an anesthetic agent under the supervision at all times of one who is licensed to use anesthetic agents in his work. You are all familiar with the principles of the relationship between anesthetists and hospitals, as they have been approved by the Board of Trustees of the American Hospital Association, the Council on Medical Education and Hospitals of the American Medical Association, the American College of Surgeons, and by the committee representing the various societies of anesthesia. These principles have been established in many hospitals in the land, and wherever they have been inaugurated, supervision by a qualified medical specialist of all anesthetics has been provided, and postgraduate training in anesthesia for Doctors of Medicine and nurses has been made available. There is no question whatsoever that wherever such a department of anesthesia may be organized, the quality of administration of the various anesthetic agents may be of the highest order. One must view this matter, however, not only in terms of the teaching institutions alone, where the ideal may be achieved, but in terms of a cross-section of the hospitals of the land and of surgery in general. I would repeat that in the last analysis the surgeon is

as responsible for the acts of the anesthetist as he is for those of everyone associated with him in the management of the condition for which the anesthetic is necessary. There are those who would argue that question, and I would concede the point in their favor were they required to accept an anesthetist from an organized department of anesthesia contrary to their wishes, and not in accordance with their own selection of an anesthetist, had they that privilege.

If one may justly assume then that the acts of the anesthetist in the administration and conduct of an anesthesia are the surgeon's responsibility, it follows that the nurse anesthetist's limitations are bounded by the individual surgeon's delegation of duties, which will depend upon his own appraisal of her capabilities. Inasmuch, however, as the nurse anesthetist has established her status through the administration of inhalation anesthetics, in which she has for many years exhibited a particular fitness and competency, it would seem that in general a circumspect continued restriction of herself to the administration of the inhalation anesthetic agents is entirely in order.

At the turn of the century and for some years thereafter, chloroform, ether and nitrous oxide only were available as inhalation anesthetic agents, and they were administered in the simplest possible manner. During the past twenty years or thereabouts, without here enumerating them, a number of other agents have come into such general usage singly or in combination that they may now be rated at their relatively true value. Likewise, during the past twenty years there have been developed the machines and various forms of apparatuses for the administration of anesthetic agents which represent the composites from many fields of science. It is true that these various forms of apparatuses have made more complicated the administration of the various anesthetic agents singly or in combination, but with resultant approach to the ideal in inhalation anesthesia. Even though modern methods of administering inhalation anesthetic agents are more complicated than formerly, and strange as it may seem in certain circles, I have found that those complexities are entirely within the intellectual range and are not beyond the mental capacity of the trained nurse anesthetist. The breadth of the field of general anesthesia by virtue of the various anesthetic agents that may be used singly and in combination is such that there is much to promote one's interest, and an opportunity exists for not only sustaining but enhancing the position of the inhalation agents in the field of anesthesia in general.

From the beginning to the end of the administration of the anesthetic, the duties of the nurse anesthetist are manifold wherein she may materially aid the surgeon in carrying his responsibilities. The surgeon may justly expect and exact the undivided attention of the anesthetist to the administration of the anesthetic agent or agents throughout, to the general condition of the patient during the operation, and to the reactions of the patient to the anesthetic and to the surgical procedure. Variations in blood pressure, pulse rate and respiration as they are reported to him, enable the surgeon to appraise their significance in relation to the surgical procedure in which he is engaged and to govern himself and others accordingly. The trained anesthetist may through alert observation and experience anticipate certain states arising from the surgical procedure and instinctively resort to or suggest appropriate measures.

The nonchalance in the callous, abrupt induction and the airy conduct of

the anesthetist during the course of a general anesthesia I have not infrequently witnessed as I have visited surgical clinics throughout the country, have developed within me the incentive to provide for those who are about to undergo a surgical procedure that preoperative kindliness and warmth through which dissolution of concern occurs, that tender, patient and merciful induction, and that undivided attention to the job provided by and exemplified in the accomplished nurse anesthetist, and all of which emanating from the feminine hand are appreciated by man, woman and child alike.

The accomplished nurse anesthetist dose not allow her obligations and duties to cease when the patient leaves the operating room. There often are matters during the early postoperative hours which have direct relationship to the anesthesia that require her services, and frequently her talents and proficiency exhibited in these matters have had a direct bearing on the convalescence.

Anesthesia is a peculiar specialty in that it is not an independent specialty. It is a specialty which is largely dependent upon surgery. Whether or not one wishes to think of the relationship as such, nevertheless it is true that the section or department of anesthesia in an institution or hospital is subservient to the surgical department, and the anesthetist is subservient to the surgeon. Nurse anesthetists have progressed and have achieved their present station through recognition of the relationship of anesthesia to surgery, its acceptance and its encouragement. In my opinion there is no place in anesthesia for the independent nurse anesthetist. As such she cannot succeed or survive. The strength of the position of the nurse anesthetist fairly exists in the dependence of anesthesia. The more ardently she nurtures that dependence the more secure will her status in anesthesia become. The nurse anesthetist has firmly established for herself through her intellectual attainments, fitness and proficiency a position she cannot relinquish, and she has provided for herself a large scope wherein she may utilize her talents and contribute to the progress and advancement of anesthesiology. I am sure that she recognizes, respects and encourages leadership by the Doctor of Medicine in the specialty.

ANESTHESIA FOR THE DIABETIC PATIENT

IRVING M. PALLIN, M.D.

Director of Anesthesia, Manhattan General Hospital
New York, N. Y.

Read at the annual meeting of the New York State Association of Nurse Anesthetists, held in New York City, May 21, 1941.

The problem of anesthesia in diabetes has become recognized in recent years as one of great importance. Many anesthetic agents employed today for the non-diabetic patient present an analogous derangement of metabolism comparable to that of the diabetic. This comparison is demonstrated by such agents as ether and chloroform particularly in that they produce hyperglycemia, glycosuria, acidosis, and a concomitant glycogen deficiency of the liver.

Diabetes mellitus is defined by Mosenthal and Ashe as "a disorder consequent upon a diminished ability of the body to utilize glucose. . . . This

defective utilization of sugar produces a hyperglycemia which follows the diminished oxidation of glucose by the body tissues and the inability of the liver, muscles, and other tissues to store glucose as glycogen in normal amounts."

Glucose must be oxidized in the body so that there shall be complete oxidation of the fatty acids to carbon dioxide and water. If sufficient glucose is not utilized, the fatty acids are not completely changed to their usual end products, but remain within the body as betaoxybutyric acid, diacetic acid, and acetone, ultimately to be excreted by the kidneys or by the lungs as acetone.

The hyperglycemia per se without the presence of acidosis can be troublesome. Hyperglycemia causes polyuria with resultant dehydration and dessication of the tissues. The importance of sufficient body fluids during surgery and anesthesia cannot be over-emphasized. Mosenthal and Ashe state that the edematous diabetic is rarely seen in diabetic coma. The disadvantage of the added dehydration and dessication are multiple. The chief disadvantages may be mentioned as shock, decrease in cardiac reserve, and the general debilitating effect on the central nervous system and kidneys.

Should any possibility of dehydration exist, the condition must be corrected immediately by the administration of intravenous saline solution. Even sodium bicarbonate tends to help the retention of fluids in the body and overcomes the acidosis to some extent. Sodium chloride may even be given by hypodermoclysis. Sodium chloride is considered as one of the most efficient electrolytes for retaining fluid in the blood and tissues, and to combat dehydration.

Since the advent of insulin, such extreme conditions are not frequently seen. Insulin has truthfully given the diabetic a new lease on life. Today every diabetic can engage in every normal activity, mental or physical, except in their diet and in the taking of insulin. The use of insulin in a surgical diabetic is a magnificent help to both the anesthetist and the surgeon, but requires the knowledge and skill of the internist. The close coöperation of all three — the surgeon, the internist, and the anesthetist, has reduced the operative morbidity and mortality in diabetics remarkably. No matter how mild the diabetes may be, the patient must always have the advantage of such cooperation. The anesthetist, with the knowledge of the pharmacodynamics of the anesthetic agents, skill in administering the chosen agent, and invaluable judgment in evaluating the condition of the patient, is indispensable. It is wise for the surgeon to limit the extent of the surgery where such a course is considered expedient.

The anesthetist must be cognizant of other factors which may cause hyperglycemia in the presence of diabetes. The chief etiological factors are pain, fear, excitement and other nervous strains, shock, anoxemia, epinephrine, infections, and excessive food intake. Hyperthyroidism and hyperpituitarism also cause hyperglycemia. One of the most important factors is either the excessive secretion or the injection of epinephrine. This hormone, in addition to hyperglycemia, produces a diminution in the glycogen in the liver and the muscles, especially the heart and other tissues.

The factors which contribute to hypoglycemia and diminished glycogen reserve are hyperinsulinism, exhaustion, undernutrition, and neoplasms. Hyperinsulinism must be strictly avoided because it does produce coronary spasm. Such spasm is dangerous from three points of view:

1. It diminishes the blood supply to the heart, thus decreasing the cardiac reserve and weakening the heart.
2. It may produce a predisposition to ventricular fibrillation.
3. It may predispose to the formation of coronary thrombosis in the patient who already has some damage in the coronary vessels, i. e., in arteriosclerosis.

For the sake of brevity and clarity a simple classification of diabetics has been devised for those who are about to undergo anesthesia and surgery.

Class I

This class includes pre-diabetics and diabetics who are controlled easily by diet, or by diet and insulin up to 30 units per day. These diabetics should have no past history of diabetic coma or acidosis which have made confinement to bed a necessity.

Class II

This class includes those diabetics who require over 30 units of insulin per day; who give a history of acidosis requiring either hospitalization or bed rest but have not been in coma; who might require a mild glycosuria for their well-being and yet show no positive laboratory findings of acidosis; and who are to have elective surgery.

Class III

This class includes those diabetics with infections and long-standing debilitating diseases such as neoplasms or low grade septicemias; those who give a past history of having been in diabetic coma; those of Classes I and II who require emergency surgery.

The preoperative preparation of the patient is one of the most important duties of the attending physician and surgeon when the patient has been scheduled for an operative procedure. The Class I diabetic can be easily dismissed from this part of the discussion with the precaution that care be taken that the diabetes is controlled and plenty of fluids have been administered. Criteria for such an ideal state should depend upon the judgment of the internist and surgeon and upon such laboratory procedures as the carbon dioxide combining power of the blood, the blood glucose, and the absence of acetone and diacetic acid in the urine. It is best that the carbon dioxide combining power of the blood in volumes per cent range between 40 and 60, and the blood glucose between 80 and 125 milligrams per 100 cc.

The diabetic of Class II presents a more difficult problem and requires more study, closer observation and greater vigilance. The diabetic who is to have elective surgery should be hospitalized at least two days prior to the day scheduled for surgery. This procedure allows for control of the diabetes, obviating acidosis, and tends to acclimate the patient to hospital routine. The latter factor is much more important than appears on the surface. Even in the normal individual hospitalization presents a fearful and trying experience. Such psychic disturbances produce hypersecretion of epinephrine, which in addition to making the diabetes more difficult to control, causes a depletion of glycogen reserves, especially of the heart and liver, where they are needed the most. It has become general knowledge that depletion of glycogen in the liver predisposes to damage to that organ. Fluids must be forced every day to insure a normal water balance. Sodium chloride by mouth or parenterally should also be given in fairly large quantities. The daily intake should be at a minimum of 10 to 20 grains. A diet rich in carbohydrates with normal fat and protein

intake should be given, with a view to creating glycogenesis. The glycogen reserve must be built up.

Hrubetz and Blackberg, Rosenkrantz and Bruger have demonstrated that barbiturates given in sedative dosage tend to prevent hyperglycemia in both the non-diabetic and the diabetic patient. Rosenkrantz and Bruger have shown this effect on human subjects, using calcium carbonate as the placebo in the control series. In accordance with these findings it would be wise to sedate these patients during their hospital stay. The sedative of choice is phenobarbital in the dosage of ¼ grain to one grain three times per day, depending on the age, weight, sex, general condition, and emotional status of the patient. The average individual should get ½ grain three times per day followed by 1½ grain at bedtime. It should be remembered that phenobarbital is eliminated very slowly, and entirely through the kidneys, so that one must guard against its accumulative action. The dosage can be readjusted from day to day depending upon the patient's reaction to the sedation. Phenobarbital is selected because of its slow and prolonged action, which provides a smooth effect. It is less toxic than the shorter acting barbiturates. Should there be any impairment of kidney function, however, then it is wise to use a short acting barbiturate such as sodium pentobarbital or seconal in comparable doses. These drugs are broken down in the liver and not eliminated through the kidneys except in overdosage. Thus the use of short acting barbiturates is contraindicated wherever liver damage is diagnosed or even suspected.

Class III presents an entirely different picture from that of Classes I and II. Here the time element becomes of extreme importance and rapid and adequate stabilization of the deranged metabolism is required. It is beyond controversy that the comatose patient is one of the worst anesthetic and surgical risks. Any delay in surgery while the acidosis is being treated is of immeasurable assistance. The acidosis must be obviated as soon as possible, and considerable amounts of water and sodium chloride must be supplied to the tissues. The most rapid method is by administration of intravenous saline. Glucose also may be given in spite of the hyperglycemia, to aid glycogenesis. It follows naturally that this glucose must be covered by sufficient insulin to prevent a greater hyperglycemia from occurring and at the same time reduce the hyperglycemia already present. Insulin is necessary in addition to the oxidation of the carbohydrates because it produces glycogenesis. Hyperinsulinism must be avoided because of its shocking effect and also because it produces coronary spasm. These facts cannot be repeated too often.

The opinion is becoming concurrent that there are relatively few conditions that require immediate surgical intervention. Until very recently the diagnosis of acute appendicitis was synonymous with immediate appendectomy. Allen, on the children's surgical service at Bellevue Hospital, showed that the mortality in acute appendicitis and peritonitis with dehydration was reduced from 6 per cent to 1.7 per cent when operation was deferred from one to two hours while the patient was given fluids parenterally. These statistics demonstrate how much more important it is to combat dehydration than to do immediate surgery.

Such an example should not be misinterpreted to the extent that surgery ought to be deferred in all cases. In active hemorrhage there is no doubt that delay is contraindicated. Thus

the judgment of the surgeon as to how long surgery can be delayed is imperatively invaluable. The presence of shock necessarily must be treated per se and presents a serious added hazard.

The anesthetist assumes a prominent rôle in the function of premedicating the patient. The ideal premedicative drugs should provide psychic sedation, depression of reflex irritability, moderately diminished metabolism, depression of respiratory glandular secretions, some degree of amnesia but without any untoward respiratory depression, circulatory depression, or derangement of metabolism.

Morphine and atropine, or scopolamine, approximate these ideals most closely. Morphine presents considerable controversy in its effect on glucose tolerance. It is generally agreed, however, that morphine in large doses does produce hyperglycemia, primarily through the resultant hypoxia due to diminished respiratory minute volume. It may be administered as morphine sulphate, as pantopon, which is 50 per cent morphine, although it contains all the alkaloids of opium, and as dilaudid. For safety sake it is best that the dosage of morphine be rather light, thus the average dose would be 1/6 grain. Since its maximum depressing effect is present one hour after subcutaneous injection, it is wise to administer the preoperative medication one hour before the scheduled operation.

Scopolamine and atropine have no effect on carbohydrate metabolism and do not suppress insulin secretion, even though they do depress the digestive enzymes secreted by the pancreas. The dosage of these drugs is calculated in the ratio of atropine to morphine of 1:25. Thus with 1/6 grain of morphine, scopolamine or atropine is given in the dose of 1/150 grain. Scopolamine is preferred by the author of this paper because it provides an added psychic depression and amnesia in many cases. Atropine is preferable in operations about the neck in that it produces more vagal depression.

The barbiturates are important for premedication in spinal, local, and nerve-block anesthesia. Tatum has shown that premedication with the barbiturates raises the toxic dose of cocaine and its derivatives. His work was done on animals, using sodium amytal. Thus it has been found that barbituric premedication tends to diminish the effect of untoward reactions from the local injection of procaine.

The barbiturates play a different rôle in spinal anesthesia. Here they provide psychic sedation and possibly sleep, which is so important for cooperation by the patient during the surgery, but also tend to obviate the arrhythmias attendant upon the injection of ephedrine for excessive blood pressure drop. Campbell and Morgan state that large doses of ephedrine produce slight and transitory hyperglycemia, but this was prevented by nembutal anesthesia.

The choice of the anesthetic agent is the anesthetist's responsibility, but requires the surgeon's cooperation. The anesthetist must have a thorough knowledge and understanding of the pharmacodynamics of every agent in order to be able to choose intelligently the proper one.

The anesthetic agents which should be excluded from the armamentarium are chloroform and ethyl chloride. The former increases the blood glucose to as high as 200 per cent, and produces an acidosis. This condition requires twenty-four hours to return to normalcy. The great danger lies within the liver, however, because many cases of liver damage have been reported. It has been shown that de-

creased oxygen or diminished liver glycogen predisposes to hepatitis and central necrosis. Because of such possibilities it is wiser to eliminate the use of this drug. Ethyl chloride produces much the same blood sugar effects, but to a lesser degree. However, it is not as damaging to the liver.

Avertin can be used only as a basal anesthetic. Even as such, it produces a 30 per cent increase in glucose in the blood after thirty minutes. The carbon dioxide-combining power of the blood is decreased, with return to normal in forty-eight hours. The total base is decreased but the bicarbonates are increased at first and decreased after thirty minutes. The pH increases 0.1 to 0.2 units. Colman states that the liver is slower in recuperating from the damage caused by avertin than from other types of anesthesia which produce hepatic damage. Furthermore, this drug is eliminated through conjugation in the liver to glycuronic acid, which is excreted in the urine very slowly — 70 to 80 per cent in forty-eight hours, 95 per cent in seven days. Glycuronic acid is not a hypnotic, however.

Avertin also produces circulatory and respiratory depression with consequent hypoxia. The latter, as previously stated, produces hyperglycemia and glycogenolysis. From the facts one can conclude that avertin should be avoided and used only when there is a specific indication for it.

Divinyl oxide or vinethene has much the same effect on sugar metabolism as ether. Because this drug is much more toxic and potent, however, and because liver damage can occur with anoxia, it is wise to dismiss it also, except for induction in a Class I diabetic.

Although ethyl ether is still the most widely used agent, it produces undesirable effects on sugar metabolism. Ether in anesthetic dosage raises the blood sugar about 100 per cent, increases glycogenolysis, causes glycosuria, and is attended by the production of acetone bodies even in the normal individual. Brow and Long working on cats demonstrated that deep etherization for two and a half hours reduced the glycogen of cardiac musculature by 87 per cent, with a return to normal in twenty-four hours. Saklad states that there is still an increase in blood sugar of 27 per cent six hours, and 18 per cent twenty-four hours postoperatively. Whether ether interferes with sugar oxidation or glycogenesis, or whether it produces glycogenolysis is a matter of conjecture.

Ether may be used in the Class I diabetic. It may also be used in the Class II diabetic who has had adequate preoperative treatment. However, it is contraindicated in those of Class III.

Wherever possible ether should be administered by the closed carbon dioxide absorption technique because it allows adequate oxygenation and carbon dioxide absorption. The ether cone does not provide adequate oxygenation or removal of carbon dioxide. It has been demonstrated that the incidence of liver disease is much lower when high oxygen concentrations are used with the administration of ether. If one has to use open mask ether, it is wise to have a tube under the mask delivering 500 to 1000 cc. of oxygen per minute. Such amounts are necessary because the respiratory gases are mixed with atmospheric air.

Ethylene produces an increase in the blood sugar of 30 per cent, with a return to normal in twenty-four hours. According to Saklad there is an increase as high as 45.3 per cent to as low as 29 per cent. There is also a slight fall in the carbon dioxide-

combining power and the blood pH. In the presence of anoxia these values are considerably increased. Thus in those cases where at least 20 per cent oxygen can be given, it may be used in the first two classes of diabetics. The difficulty here lies in that the first plane of anesthesia is the most one can expect to obtain under ordinary circumstances without anoxemia. With rather heavy premedication the second plane can be attained.

Cyclopropane is one of the three ideal anesthetic agents for all diabetics. Glucose is increased from 8 to 30 milligrams per 100 cc. of blood. The carbon dioxide-combining power is decreased 2 to 7 per cent with no significant changes in diabetes. Harms states that cyclopropane does not increase liver glycogenolysis and does not hamper the kidneys in the excretion of sugar, acetone, or diacetic acid. It has no effect on the normal or damaged liver. Neff and Stiles showed in a series of thirty insulin controlled diabetics that there was a 7 per cent milligram increase of glucose with a 2 volume per cent decrease of carbon dioxide-combining power.

From these facts one can conclude that cyclopropane has many desirable features in anesthesia for the diabetic. Its chief disadvantages are, however, that it is explosive and that frequently the desirable amount of relaxation for abdominal surgery is difficult to obtain. However, whenever such a situation does occur it can be remedied easily by injection of 1 per cent procaine under the rectus sheath surrounding the operative field. It must be emphasized very strongly that epinephrine is not to be used with procaine.

Nitrous-oxide without an anoxia has none of these undesirable effects.

In all inhalation anesthesia it is extremely important that a patent adequate airway is maintained at all times to insure adequate gaseous exchange, particularly oxygenation. One should never hesitate to insert an endotracheal tube whenever upper respiratory obstruction is anticipated or has occurred.

Spinal anesthesia is the second anesthetic method of choice in the diabetic patient. There is no immediate rise in the glucose without shock or anoxia, but Saklad has reported a rise of 5.4 per cent at the end of six hours and 5 per cent at the end of twenty-four hours. The carbon dioxide-combining power is unchanged or slightly decreased; the total carbon dioxide is very slightly increased. However, the great disadvantage of spinal anesthesia is that it should still be limited to operations below the diaphragm. It is also contraindicated in hypertension, disease of the central nervous system, septicemia, impending intestinal gangrene as in obstructions, impending perforation of the appendix, and extreme hypotension.

Local anesthesia is the third anesthetic method of choice. It produces per se none of the metabolic disorders. Again it must be emphasized that epinephrine or adrenalin must not be used. If a 2 per cent solution is used, the total amount injected within fifteen minutes should not exceed 60 cc.; for a 1 per cent solution it should not exceed 125 cc.; and for a ½ per cent solution 250 cc. may be used. Caution must be exercised that it is not injected intravenously.

Although intravenous barbiturate anesthesia has gained considerable popularity in the last few years, it still presents much controversy. It should be thus used with caution or not at all. There are still many opinions as to its effect on carbohy-

drate metabolism. These drugs are detoxified in the liver exclusively. It is agreed that they do cause a decrease in the pH of the blood with an increase in lactic acid. The glucose increase with pentothal sodium is variable.

Postoperatively it is necessary that the fluid or blood loss be reinstated in kind. Shock should be treated by the administration of both.

SUMMARY

1. Diabetes and anesthesia are analogous and closely allied in their effects on metabolism.
2. Diabetic patients are divided into three classes.
3. The preoperative preparation of a diabetic is as important as the anesthetic administered and the surgery performed.
4. Barbiturates play an important rôle in preoperative preparation and in premedication for spinal and local anesthesia.
5. Morphine and scopolamine, or atropine in the ration of 25:1 are excellent premedicative drugs.
6. The anesthetic agents of choice are cyclopropane, spinal, and local.
7. The cooperation of the internist, the surgeon, and the anesthetist is of immeasurable value in reducing the operative morbidity and mortality of diabetic patients requiring surgery.

ATELECTASIS, ASPHYXIA AND RESUSCITATION IN THE NEW BORN

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A lusty cry at birth inflates the lungs of a normal new-born child. Failure to inflate the lungs constitutes atelectasis. Atelectasis varies in degree from a few unexpanded alveoli in the hilum and along the vertebral margin of the lungs, as is usually found in the so called normal new born, to a serious failure of large areas of lung tissue to inflate, as is found in the abnormal child.

In determining the pathology, the method of resuscitation, and the probable course of the condition, it is necessary to differentiate between atelectasis occurring in the full term new-born infant and atelectasis occurring in the premature infant.

Read at the eighth annual meeting of the New York State Association of Nurse Anesthetists, held in New York City, May 21-23, 1941.

In the full term child, atelectasis is usually due to aspiration of amniotic fluid or mucus into a main bronchus, but it may result from some form of cerebral hemorrhage affecting the respiratory center. This latter, of course, may be traumatic, as in difficult forceps deliveries, or it may result from anoxemia of the brain caused by some form of compression on the cord during labor.

In the premature infant atelectasis

is usually the result of feeble respiratory excursions or of those conditions in which the lungs are inherently incapable of expanding, not so much because of the failure in the respiratory effort, though this indeed may be weak, but because of a certain amount of cohesion existing between the moist surfaces of the air passages which prevent the entrance of air. Histologically, the endothelial lining of the alveoli in premature infants may be more than one cell layer thick and therefore prevent the passage of oxygen through the alveoli.

Controversy still exists as to whether or not a fetus has respiratory movements in utero. Recent investigators now believe that this phenomenon does occur in human feti. It is believed that the respiratory center which is normally dormant needs only stimulation, whether it be of a chemical or biological origin or both, to set it in action. A decreased oxygen concentration in the blood together with a relatively increased carbon dioxide concentration stimulates this respiratory center. In the last analysis, interference with the placental circulation, whether it occurs before labor or during labor, causes this change in the oxygen-carbon dioxide ratio and this initiates respiration. Atelectasis may give no symptoms at all, but, as a rule, cyanosis is the most conspicuous finding. Even in the absence of cyanosis, however, atelectasis should be strongly suspected when resuscitation is difficult and is followed by feeble and irregular respirations; and by a pulse which, though rapid at first, gradually slows down. The course of the disease varies, but, in general, the longer the condition exists, the more difficult it is for the lungs to expand.

The exact relationship of atelectasis to asphyxia is difficult to determine. Obviously, asphyxia may be caused by atelectasis in which insufficient aeration prevents hemoglobin from picking up sufficient oxygen in the lungs, but, on the other hand, asphyxia may prevent the lungs from expanding because of the anoxemic affect of the blood on the respiratory center, which in turn prevents the deep initial inspiratory movement required to initiate rhythmic breathing.

Asphyxia may be said to be the failure of the nervous mechanism of respiration to function adequately. It is divided into the intra-uterine or congenital form and into the extra-uterine or acquired form. The congenital form is further subdivided according to the severity of the symptoms it presents, into asphyxia livida and asphyxia pallida. The former is characterized clinically, by cyanosis, good muscle tone and reflexes, and by a strong but slow heart beat. The latter, or asphyxia pallida, as the name implies is characterized by pallor, and by flaccidity and a weak but rapid heart beat.

Either form of congenital asphyxia may be caused by:

1. Interference with the fetal circulation.
2. Respiratory tract obstruction.
3. Respiratory center depression.

Interference with the fetal circulation occurs in such catastrophes as placenta praevia and premature separation of the placenta, when the fetal blood supply is so depleted that there is an insufficient quantity of blood to carry adequate oxygen to the tissue. In addition, the circulation to the fetus at the placental site may be embarrassed by uterine contractions, either spontaneous or caused by the excessive use of oxytoxics such as pituitrin or thymophysin. Again, embarrassment may occur from tonic contractions of the uterus as is commonly seen in cases of dystocia; often resulting in the formation of a Bandl's contraction ring. Then again, eclampsia frequently inter-

feres with the circulation to the fetus at the placental site.

Obstruction in the respiratory tract may be caused by mucus plugs.

Depression of the respiratory center may result from direct pressure, as is seen in cases of cephalopelvic disproportion or from actual intracranial damage. Finally, the injudicious use of analgesics and anesthetics is a frequent cause of asphyxia.

The acquired form of asphyxia results from late intracranial hemorrhages, atelectasis, pneumonia, et cetera.

Care should be taken to distinguish between asphyxia and apnea. The latter occurs when the process of birth has not interfered with the placental circulation. Apnea is usually seen in babies delivered by cesarean section, where the normal gaseous exchange has not been interrupted prior to delivery. Here the carbon dioxide concentration in the blood has not been altered sufficiently to stimulate the respiratory center immediately.

There can be no doubt that modern women should have so-called "painless" labor. This may prevent severe psychic trauma and physical strain. Adequate analgesia also leads to a more rapid and complete convalescence. There is no doubt, however, that the agents of "painless" labor have their effect on the fetus. The barbiturate derivatives, notably nembutal, are now the most popular analgesics. Whether or not they are better than the Gwathmey or paraldehyde analgesia, is open to question. Certainly the oral administration of the former is easier and less time-consuming than the rectal administration of the latter. The barbiturates function by depressing the respiratory center, and obviously the fetal respiratory center is more susceptible to these drugs than that of the mother. Thus, a dose which merely quiets the mother may lead to a markedly lethargic and dangerously apneic infant at birth. It is to be remembered that until the actual delivery occurs, the placental circulation is still functioning and the infant in utero is getting sufficient oxygen; therefore, no clinical manifestation of excessive use of a drug may be perceptible to the observer.

Inhalation anesthesia is frequently used in the latter part of the first stage of labor before full cervical dilatation, but, of course, finds its greatest use during the second stage. Here, the skill and judgment of the trained anesthetist and her evaluation of the individual patient plays an important rôle. She must know the type of analgesia used and the degree of analgesia induced. She must know how long the patient has been in labor and about how long the actual delivery will presumably take. The anesthetist must also know whether or not the delivery is to be a spontaneous or an operative one.

Anesthetics, particularly nitrous oxide, lower the oxygen saturation of the fetal blood. Clinically, this causes no concern if the ratio of gas to oxygen does not exceed 80:20 for more than a five minute period. Lack of oxygen will destroy the vital tissue of the brain substance. Late neurological symptoms often found in infants who have had difficult operative deliveries may result from prolonged deep anesthesia and not from the actual operative procedures. Open drop ether, which insures adequate oxygenation of the fetal blood, is therefore preferable when a deep and prolonged anesthesia is necessary, though the incidence of postpartum hemorrhage is higher following deep ether anesthesia than after that of gas-oxygen.

The need of resuscitation is usually immediately obvious to the experienced attendant. The actual methods may vary but a few fundamental concepts

must be borne in mind. They are—gentleness, avoidance of sudden jerky movements, conservation of body warmth, and a clear airway from the lips and nose to the lungs. Swinging the child, folding and unfolding the child's trunk, ice cold tubbing, and forceful mouth to mouth insufflation are condemned categorically.

At a glance the observer can usually distinguish between asphyxia livida and asphyxia pallida. If the baby is blue and rigid, and if the heart beat is strong and its rate regular, as in asphyxia livida, and also if the pharyngeal and tracheal reflexes are present, milder methods of resuscitation may be instituted when the child fails to cry after a reasonable interval. The first steps include suspending the infant by its feet, with the head hanging downward, gently stroking the trachea toward the chin and removing the excess mucus from the throat with a soft piece of gauze. Then, if the airway still seems plugged, one should insert a soft rubber catheter deep into the posterior pharynx or trachea and apply mouth suction. This will usually suffice, but if the respiratory excursion is still delayed and not deep enough, inhalation with a mixture of 5 per cent to 10 per cent carbon dioxide and 90 per cent to 95 per cent oxygen will undoubtedly augment these excursions.

In the presence of asphyxia pallida, no child should be suspended with its head downwards, nor should it be slapped. In this serious condition, with the reflexes abolished and the heart action rapid and feeble, brain injury should be suspected. Holding an infant by its feet and actively slapping it, may enlarge a minimal tentorial tear and aggravate the intracranial bleeding with resulting death. Such a child should be placed on its side, its body wrapped gently in warm towels and its throat aspirated until the trachea is clear of all mucus. Artificial respiration in these cases is usually always necessary. A tracheal catheter or a mechanical respirator may be used. If these are not readily available, mouth to mouth rebreathing may be attempted. In asphyxia pallida, the infant needs immediate oxygen and his respiratory mechanism needs immediate stimulation. Alpha lobelin, coramine or even adrenalin directly into the heart should be used. For here, persistence is not infrequently rewarded in cases which appear to be hopeless. Later treatment of these infants, in which intracranial bleeding is suspected, should include intramuscular injections of vitamin K or 5 cc. of the mother's blood injected directly into the child's buttocks.

A word of caution might be added in reference to premature infants and infants delivered by difficult operative procedures. These babies may develop attacks of respiratory failure, cyanosis and asphyxia hours or even days after the delivery. Such infants should of course be under the constant supervision of trained observers for a prolonged period.

The neonatal death rate in the country at large is still high, but tremendous strides have been made in the past decade, particularly in the larger communities where more women are delivered by competent obstetricians. These men demand well-qualified anesthetists who recognize the inherent difference between surgical and obstetrical anesthesia, and who are equipped to render maximal aid in the resuscitation of the new born when such aid is needed.

NATIONAL CONTEST FOR STUDENT ANESTHETISTS

The contest for students of the Schools of Anesthesia, which came to a close on June 1, 1941, aroused much interest and a spirit of friendly rivalry among the various student groups. The intensive study necessary during the preparation of the papers undoubtedly added much to the exact knowledge of each participant relative to the subject chosen, thus fulfilling one of the main objectives of the contest.

Miss Agatha C. Hodgins contributed the first and second prizes of $35 and $15 respectively. The papers were submitted to the Educational Committee of the American Association designated only by a number, so that the members of the Committee had no knowledge as to the identity of the various contestants or the schools from which they were graduated. Following careful consideration of each paper, the following awards were announced:

Award	*Title of Paper*	*Contestant*	*School of Anesthesia Graduated From:*
First Prize	"Pulmonary Complications"	Margaret E. Scott Ancker Hospital, St. Paul, Minn.	University Hospitals of Cleveland
Second prize	"Positions on the Operating Table"	Viola R. Nix Jefferson Davis Hospital, Houston, Tex.	University Hospitals of Cleveland
Honorable mention	"Carbon Dioxide in Anesthesia"	Emilie K. Jensen, 2nd Lieut., Army Nurse Corps, Fort Monroe, Va.	Jewish Hospital, Philadelphia
Honorable mention	"Anesthesia in Thoracic Surgery"	Phyllis A. Roberts Lutheran Hospital, Fort Dodge, Iowa	University Hospitals of Cleveland

PULMONARY COMPLICATIONS

MARGARET E. SCOTT

Ancker Hospital, St. Paul, Minn.

This paper was awarded first prize in National Students' Contest.

Postoperative pulmonary complications are dreaded for several reasons: first, because there is much that is unknown in regard to their etiology and prevention; second, because there are so many factors that play a significant rôle in their production which must be considered; third, it is not always possible to determine by physical examination certain pre-existing conditions which may lead to a serious postoperative respiratory infection; fourth, unavoidable circumstances which predispose to pulmonary complications may develop during any operation; fifth, their mortality and morbidity.

MARGARET E. SCOTT

Early literature almost invariably refers to postoperative pulmonary complications as "ether pneumonia," probably because ether was the most widely used anesthetic (in fact in many instances it was the only anesthetic available) and because there was no other known cause for the complication and therefore ether was thought to be the most likely. As a result, ether suffered undeserved condemnation, for the most part, and even today in the mind of the layman a postoperative pulmonary complication is a direct result of the anesthetic.

It was not until other methods of anesthesia, such as local and spinal, became popular, that medical literature in comparing reports of postoperative pulmonary complications, finally began to question the part the anesthetic played in their development. I shall not attempt to cover the literature on this subject, because I am sure every anesthetist is familiar with the large amount of valuable information that has been published. Bearing this in mind I shall present in this paper that which was taught concerning pulmonary complications during my course in anesthesia, and in addition the results of an original study of 496 case histories.

As anesthetists we should not accept completely the deduction of many authorities that postoperative pulmonary complications are in the majority of cases embolic and not anesthetic in origin. Knowing the complex details that are brought into play in the successful administration of a smooth anesthesia, and the pharmacological effects of various anesthetics upon the body, I cannot but feel that the anesthetist and the anesthetic must accept some of the responsibility. Each pulmonary complication should be studied by the anesthetist in an effort to determine whether or not there were factors under the control of the anesthetist which might have influenced the end results more favorably.

Some of the most frequent postoperative pulmonary complications are as follows:

1. *Bronchitis.* Bronchitis may be identified by its simple productive cough and fever. There are no abnormal signs in the chest beyond a few râles. Tracheal râles are common, however. Recovery usually occurs in a few days.

2. *Bronchopneumonia.* In widespread bronchopneumonia crepitant râles are heard scattered throughout the lungs. The findings may be limited, however, to a single area. It can frequently be differentiated from bronchitis by physical findings, although sometimes an x-ray examination may be necessary. It is found more frequently in old, debilitated people with low resistance. Atelectasis is associated with pneumonia in about half the cases.

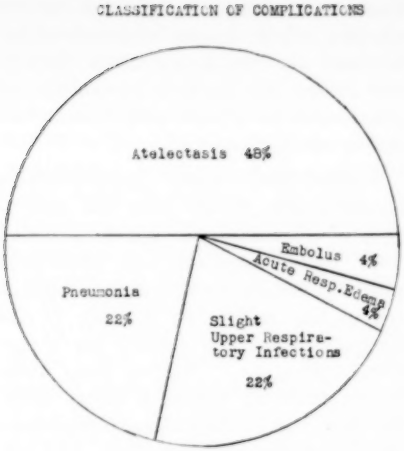

Fig. I

3. *Atelectasis.* Atelectasis may be of two types, massive or involving only small areas of the lung. Frequently it is impossible to differentiate clinically between the latter type and bronchopneumonia. Massive atelectasis can be recognized by the following: Onset occurs from a few hours to five days after operation. It is usually abrupt, with rapid, shallow respirations, occasionally pain and distress, elevated temperature, and increased pulse rate—120 to 160 beats per minute. As the symptoms progress, there is cyanosis, dyspnea, fatigue, apprehension, sweating, and

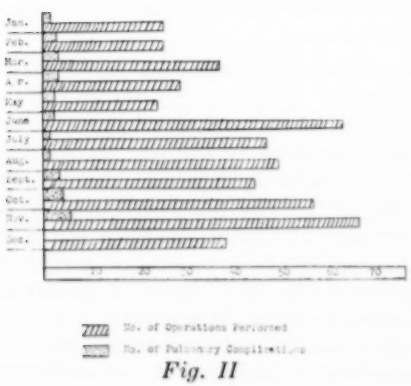

Fig. II

postural inclination toward the affected side. There is usually a productive cough with a collection of thick mucus in the trachea and large bronchi. Diagnostic signs are the displacement of the heart to the affected side, decreased expansion with an impaired dull percussion note and breath sounds which are strikingly variable, depending on the expectoration of mucus plugs. Loud bronchial breathing may be heard in a previously silent area after the expectoration of thick sputum. An early diagnosis is essential.

4. *Embolism.* Two types of embolism are recognized clinically. The first is massive pulmonary embolism, which results in an early fatality. The second is a less extensive embolism from which the patient may recover completely, or which may progress to the more severe type. In massive pulmonary embolism the patient, frequently well on the road to recovery, suddenly goes into profound shock and collapse, with cyanosis, feeble or imperceptible pulse, dyspnea, marked lowering of blood pressure, cold extremities, and not infrequently unconsciousness. Death may occur immediately or in a few hours.

The less extensive type of pulmonary embolism is often indistinguishable from pleurisy. If an x-ray shows the presence of a pulmonary infarct, the diagnosis is established. Clinically patients having had one such episode of minor pulmonary embolism, frequently have repeated emboli.

5. *Acute Pleurisy.* Two types of pleurisy are recognized clinically, that without effusion and that with effusion. In addition, pleurisy may be a complication of pneumonia or embolus with infarction. Pleurisy with effusion usually begins as a dry pleurisy. During the early stage of this type of pleurisy, and over long

INCIDENCE BY AGE

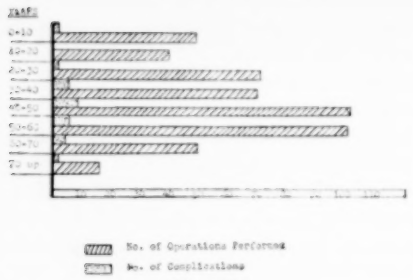

Fig III

intervals of pleurisy without effusion, a friction rub may be present. The diagnosis is usually made on the history of localized thoracic pain on inspiration and the finding of a friction rub. X-ray examination usually contributes nothing to diagnosis, unless there be infarction, pleural effusion, or thickened pleura, which is indicative of chronic pleurisy.

Factors to be considered as predisposing to postoperative pulmonary complications are: age, sex, physical condition, type of operation and the time of year, duration of operation, unphysiologic conditions associated with anesthesia, oral hygiene, and postoperative care. The old, debilitated patient is more prone to develop a pulmonary complication, particularly pneumonia, especially if the operation is of long duration, and if it has been necessary to carry the patient in deep anesthesia. A higher percentage of complications occurs in the male. Statistics show that the complications are higher following upper abdominal operations. This is probably because of the interference with respiration during operation, the deeper anesthesia that is necessary to cover the reflexes in that region, and the lowered vital capacity postoperatively due to splinting of the diaphragm with tight bandages, and voluntary restriction of chest expansion because of pain. Some surgeons prefer not to operate unless necessary during the winter months, when upper respiratory infections are most prevalent, but in our series the highest percentage of postoperative complications occurred in the spring and fall.

Undoubtedly many postoperative complications result from the aspiration of stomach and mouth contents. Too little emphasis is sometimes placed, I believe, on the proper cleansing of the mouth as a part of the preparation of the patient for a surgical operation. During deep anesthesia there is almost a direct opening into the trachea, the tracheobronchial reflexes are abolished, and unless the patient is in the Trendelenburg position, bacteria from the nasopharynx will gravitate into the trachea. Aspiration of stomach content is extremely dangerous, and aside from the aspiration of food particles, the gastric juices, high in hydrochloric acid, are irritating to the tracheal membranes and may produce a severe complication immediately after the operation.

Air-conditioned operating rooms have increased the danger of pulmonary complications. The patient who has perspired freely during an operation should be well protected from sudden chill. The patient should be transferred as quickly as possible to a warm bed and warm room, and drafts and exposure should be prevented.

The immediate postoperative treatment is of great importance. The volume of breathing should be increased either by allowing the patient to rebreathe the expired carbon dioxide, or by the administration of a mixture of carbon dioxide 5 per cent and oxygen 95 per cent. If mucus is present in the upper respiratory tract, it should be aspirated by means of a suction tube inserted into the trachea or pharynx. A few whiffs of

aromatic spirits of ammonia may be given to produce a reflex cough, thereby forcing the mucus into the throat within reach of the mouth suction. The patient should not be returned to the division until the upper respiratory tract is free and the cough reflex is present. In order to prevent aspiration, when the patient is placed in bed, the head should be turned to the side, with a pillow under the opposite shoulder.

Tight bandages and pain tend to decrease the volume of breathing, thereby preventing complete aeration of the lungs, and frequent inhalations of carbon dioxide and oxygen (carbon dioxide 5 per cent, oxygen 95 per cent) are considered of value for the first forty-eight hours postoperatively. After a carbon dioxide and oxygen ventilation, it is easier for the patient to expectorate the mucus which might otherwise collect and produce an atelectasis. Some surgeons also ask the nurse as an added precaution to stand by the bedside while the patient takes several deep inspirations. In addition to all this, the nurse should turn the patient frequently during the first forty-eight hours.

It is impossible to lay down hard and fast rules in regard to the choice of the anesthetic because the literature reveals that regardless of the type of anesthesia, pulmonary complications may develop. In the presence of an upper respiratory infection, however, a non-irritating anesthetic should be given. If the anesthetic of choice is cyclopropane, helium should be administered in definite percentages to prevent the rapid washing out of inert gases, while at the same time it decreases the explosion hazards of the cyclopropane-oxygen mixture.

The following (including Figures I, II and III) is a study of 496 consecutive cases operated during the year 1939. Herniorrhaphy and cholecystectomy operations were chosen because it was felt that these cases would give more information upon which to base the study.

PERCENTAGE OF PULMONARY COMPLICATIONS

Operations—Herniorrhaphy and Cholecystectomy

Number of Cases	*Total Number Complications*	*Percentage*
496	27	5.4%
	(8 of the above 27 had upper respiratory infection at time of operation. This fact was recorded on anesthesia chart).	

INCIDENCE OF UPPER RESPIRATORY INFECTION AT TIME OF OPERATION

		Percentage
Number of cases in which upper respiratory infection was recorded on anesthesia chart at time of operation	26	5.2%
Number that developed postoperative complications	8	31. %
Number that did not develop postoperative complications	18	69. %

SEX

	No. of Cases	*Complications*	*Percentage*
Male	326	21	6.4%
Female	170	6	3.5%

HERNIORRHAPHY

	No. of Cases	*No. of Complications*	*Percentage*
Local	125	3	2.4%
Local and G. O. E.	6	–	–
Spinal	10	1	10. %
Spinal and G. O. E.	–	–	–
G. O. E.	148	5	3.3%
Avertin and G. O. E.	27	3	11.1%
Avertin and Ether	2	–	–
Ether	40	2	5. %
TOTAL	358	14	3.9%

CHOLECYSTECTOMY

	No. of Cases	*No. of Complications*	*Percentage*
Local	–	–	–
Local and G. O. E.	–	–	–
Spinal	6	1	16.6%
Spinal and G. O. E.	2	–	–
G. O. E.	117	10	8.5%
Avertin and G. O. E.	11	2	18.1%
Avertin and Ether	–	–	–
Ether	2	–	–
TOTALS	138	13	9.4%

Deaths

No deaths occurred in the cholecystectomy group. There were three deaths in the herniorrhaphy series, as follows:

1—Expired twelve days postoperatively, as a result of pulmonary embolus.

Anesthetic: gas-oxygen-ether.

1—Strangulated hernia. Expired four days postoperatively — bilateral bronchopneumonia. Upper respiratory infection was present at time of operation — râles at both bases, and head cold.

Anesthetic: gas-oxygen-ether.

1—Expired thirty-six hours postoperatively — acute respiratory edema. Preoperatively patient had asthma, emphysema, arteriosclerosis.

Anesthetic: local.

In this study the duration of the anesthesia did not appear to play a significant part in the development of the complication. It was noted, however, that of the total number of complications 58 per cent had a marked fall in blood pressure at some time during the anesthesia.

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POSITIONS ON THE OPERATING TABLE

VIOLA R. NIX

Jefferson Davis Hospital, Houston, Texas

VIOLA R. NIX

This paper was awarded second prize in National Students' Contest.

In most hospitals it is the anesthetist's responsibility to see that the patient is placed in the proper position on the operating table. Unless one experienced person in the operating room assumes this responsibility, accidents may occur, and such accidents are a direct reflection upon the anesthetist and others attending the patient in the operating room.

The position should be inspected by the surgeon before the operation is started in order to avoid delays after the operating field has been prepared. Placing the patient in proper position may be accomplished in several ways. The surgeon usually has a preference as to the apparatus and procedure to be followed. The anesthetist should be thoroughly familiar with the desires of the surgeon and the most favorable positions for all types of operations. She should be aware of the dangers attending the various positions, and should be able to tell at a glance whether or not the patient is placed comfortably on the table.

The results of a poor position may be summed up as follows:

1. Poor exposure of the operating field, which may handicap the surgeon and prolong the operation.
2. Obstruction to breathing, resulting in poor control of the anesthesia, and asphyxiation.
3. Posture paralysis, ranging from a slight injury to a complete plexus paralysis.
4. Postoperative discomfort. Under anesthesia general musculature is relaxed and unless supported, pain and discomfort will result.

The immediate results of a poor position, namely, the handicap to the surgeon and obstruction to breathing, are readily observed, because they are visible evidence of difficulty and will be corrected immediately. A position resulting in posture paralysis is insidious because it may escape the attention of the anesthetist and the attending staff, and its full significance may not be realized until the patient is conscious and complains of pain or paralysis.

The anesthetist must also bear in mind that in certain diseases such as diabetes, even the slightest pressure may cause tissue damage, resulting in the development of gangrene. If the patient's circulation is impaired, pressure from the face mask, straps, blood pressure diaphragm, or retaining straps, must be watched carefully.

The patient should be put to sleep in the dorsal position because it is more comfortable and a smooth maintenance stage of anesthesia can be established more easily in this position. Moving an anesthetized patient suddenly, particularly under deep narcosis, may cause circulatory disturbances, therefore the patient should be moved cautiously from one position to another. The anesthetist, who is with the patient from the time he is put to sleep until he is safely in bed, should be watchful to see that the patient is always handled gently.

In this paper I shall not attempt to outline the desired position for all types of operations. I shall, however, describe in detail a few of the positions that have given me the most difficulty as a student.

Dorsal Position

The dorsal position is the most comfortable and the one met with most frequently in the operating room. The patient should be placed squarely on the table with the hands fastened securely to the sides. The hands should never be placed underneath the buttocks. Wrist drop will develop if the hand is allowed to hang over the edge of the table. As a rule this disability is transient, although any injuries inflicted upon the unconscious patient may be serious. Support of the neck is also important. A small soft pillow should be placed so that when the neck is extended, the muscles of the neck are free from strain. If the operation is to be prolonged, postoperative backache may be prevented by placing a soft pillow in the lumbosacral region.

Trendelenburg Position

As a rule the patient is not placed in the Trendelenburg position until the anesthesia is well established. Changes in the position of the table, either upward or downward, should be made gradually. The lowering of a patient into Trendelenburg position suddenly, especially the obese patient, may cause respiratory embarrassment and circulatory failure.

The shoulder braces should be well padded, and so placed as to prevent pressure on the brachial plexus. It is advisable to have markings on either side of the table so that the brakes may be placed at an equal distance from the head of the table. In this way the weight of the patient is supported equally on both shoulders. If it becomes necessary during the operative procedure to administer intravenous solutions, care must be taken that the arm is not markedly abducted.

The flexure of the knees should be directly over the break in the table, so that there is no pressure on the peroneal nerve. Pressure on this nerve may cause foot drop. Extreme flexure of the knees, which should be avoided, stretches the abductor muscles and may handicap the surgeon in the exposure of the pelvis, and the surgeon

may wrongfully attribute the tight muscle to inadequate anesthesia.

Lithotomy Position

The patient should be placed in the lithotomy position slowly, in order to prevent weight being thrown suddenly against the diaphragm. Some patients do not breathe easily in the extreme lithotomy position, and Hewitt refers to a case of gangrene of the legs following the use of this position.[1] The arms should never be placed over the chest but supported comfortably at the sides, protected from pressure against the stirrup by the use of small pads. If the hands cannot rest inside the stirrup, the arms may be placed across the lower abdomen, well supported from the elbow by means of the gown.

Prone Position

The correct prone position is not difficult to accomplish, but obstruction to respiration may result unless ample breathing space is provided. After the patient is anesthetized, a breathing tube is inserted, and the patient carefully turned onto his stomach. To raise the chest at least 6 inches from the table, firm rolls or sand bags may be placed horizontally under the shoulders (see Figure 1).

FIGURE 1

Prone position, showing rolls under shoulders which raise the chest off the table.

[1] "Anesthetics." Hewitt. 1912. page 245.

The head should be turned to the left, resting on a small pillow placed so as to allow the face to be turned downward at about a 45 degree angle. The neck muscles in this position will be free from tension. Care must be taken that the mask does not rest entirely on the mattress and thereby produce pressure over the eyes. A pillow may be used under the abdomen to insure greater freedom of breathing, but it should be so placed that it does not hinder diaphragmatic movement.

The arms may be placed at the side in a comfortable position and inspected to make certain that they are not in extreme rotation, which would produce a stretching of the shoulder muscles. It is preferable, however, to put the arms above the head because in this position they are not in the way of the surgeon and there is less danger of posture paralysis. With the face to the left, the right arm may be brought well up around the head, the hand resting comfortably on a pillow to prevent wrist drop. The left arm, because of the blood pressure apparatus, should be supported on an arm board with a large pillow under the forearm. The hand should be held securely by a cotton strap pinned under the board. External rotation or extreme abduction of the arm may cause paralysis, usually of the Erb-Duchenne type. A pillow should also be placed so that the toes do not rest on the mattress.

In some hospitals the Cushing head rest is used for all patients in prone positions. This is a horseshoe-shaped apparatus upon which the forehead rests (see Figures 2 and 3). The shoulders are supported by special braces attached to the table. These braces can be raised or lowered as desired. The arms may be supported as previously described. We seldom used this position when I was

FIGURE 2

Prone position, front view, showing rest supporting the head.

FIGURE 3

Prone position, side view, showing the shoulder braces, and pillows under abdomen.

in training, and I prefer the less complicated method, namely, the rolls and pillows. The horseshoe-shaped support also has the disadvantage in that the conventional face mask cannot be used. Pharyngeal nasal catheters or an intratracheal tube must be inserted before the patient is placed in position.

Kidney Position

The kidney position is probably the most difficult to attain, particularly from the surgeon's standpoint. Proper exposure of the field of operation is difficult, and undue compression of the chest may result if the patient, because of improper support, tends to roll forward throughout the operation. The new operating tables are equipped with well padded concave braces which are adjustable at the site of the break in the table, for the support of the back and abdomen. The break in the table is made about two inches above the crest of the ileum, making a straight line between the end of the thoracic cage and the ileum, thereby throwing the kidney upward at the site of the operation. The upper leg is placed in a straight line with the body, which helps to maintain this position. The lower leg is flexed at the knee, with a large pillow between the legs at the point of flexion.

The support of the chest is important in order to prevent compression of the lungs and obstruction to breathing (see Figure 4). Before

FIGURE 4

Kidney position, back view, showing strap fastened to table holding roll in position.

starting the anesthetic, the gown should be pinned half way down the back. The lower arm is pulled forward in a natural position in order that the weight of the patient will be distributed evenly along the latissimus dorsi, infraspinatus and posterior part of the deltoideus. Direct pressure on the shoulder or extreme abduction of the lower arm may cause Erb-Duchenne paralysis.

A roll the width of the chest, resting on the pad and placed well in the axilla, supports the upper arm. The

gown is used as a sling to keep the roll in position. The hand rests lightly on the lower arm, making certain that the wrist is not bent backward. A long cotton strap 6 inches wide is then placed half way down on the arm supported by the roll. The ends are drawn to the back of the shoulder, crossed, pinned to the gown and tied to the table (see Figure 5). This

FIGURE 5

Kidney position, front view, showing roll which supports the chest.

holds the roll in position securely, and makes a perfect triangle. In order to keep the roll and arm from falling toward the head, another long cotton strap is slipped through under the strap supporting the arm and tied to the lower end of the table.

Gasserian Ganglionectomy

For gasserian ganglionectomy most surgeons prefer to work with the patient in the sitting position. This is not easy to accomplish, and there is always the danger of cerebral anoxemia developing if the patient is raisd suddenly from the dorsal position to the upright under anesthesia. A special apparatus is necessary to hold the head securely in position (see Figure 6). The great difficulty arises from the tendency of the patient to slip down on the table. A

FIGURE 6

Gasserian ganglionectomy position showing special apparatus to support the head.

cotton strap is placed under each axilla, swung over the shoulder and fastened securely to the back of the table. Placing the patient well back in the chair, with a wide restraining strap below the knees, will, if the strap is properly adjusted, keep the patient from sliding downward, out of the head piece. The hands should be placed comfortably on a pillow on the lap, and fastened by a long arm strap.

Cerebellar Position

Unless the patient is placed in the proper position for a cerebellar operation, two serious difficulties will arise. First, the surgeon will be unable to obtain the proper exposure; and second, obstruction to breathing will develop if the chin is pressed toward the chest. Obstruction to breathing will cause increased bleeding in the field of operation, edema of the brain, and death. The Cushing head rest described above is used to

support the head. The shoulders and body rest on a padded brace which slants downward from the shoulders to the abdomen, leaving the chest and diaphragm free (see Figure 7). A

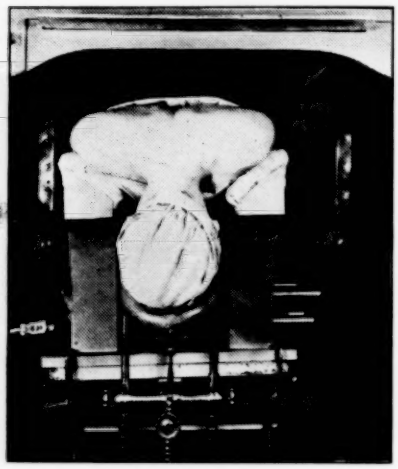

FIGURE 7

Cerebellar position, showing shoulder support and horseshoe-shaped apparatus for head.

large pillow is placed under the pelvis to prevent too great an arch or drop from the body support. A pillow is also placed under the legs below the knees, so that the toes do not rest on the table. In obtaining a good position, the secret lies in the placing of the shoulders, which should be well up on the rest, allowing the head to hang, supported by the horseshoe-shaped apparatus. If the position is correct, the surgeon while standing should be able to look straight down upon the base of the brain, and the respiration will be free and easy.

The illustrations are not correct in all details, because first, they were taken by an amateur photographer, under poor lighting facilities; second, this was my first attempt at arranging sittings and it was difficult to visualize exactly the angles and views; third, time would not permit doing them over, a circumstance for which I am very sorry.

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DEPARTMENT OF EDUCATION

Many of our members have requested that we publish a technique for the administration of cyclopropane. In consequence various Schools of Anesthesia were contacted and the information received has been compiled as a symposium, appearing in this and the next succeeding issue of the Bulletin.

ROSALIE C. MCDONALD

THE ADMINISTRATION OF CYCLOPROPANE

From: Department of Anesthesia, Duke University Hospital, Durham, N. C.

No single technique is applicable to all cases. The patient presents an individual problem and therefore the individual demands are our only guide in the determination of dosage requirements. For this reason we approach the subject with the statement that in intra-abdominal surgery we usually conduct the cyclopropane anesthesia as follows:

Premedication—Morphine 8 to 10 mgm., hyoscine 0.3 of a mgm., atropine 0.3 of a mgm., given forty to sixty minutes preoperatively.

Technique—In all cases the complete rebreathing technique with carbon dioxide absorption is employed. (An oropharyngeal airway is usually introduced towards the end of the induction period.)

Administration—

Induction: Oxygen not exceeding 2000 cc. is flushed into the bag (obturator valve closed).

The mask is applied to the patient's face. The obturator valve is opened and the straps adjusted. During this procedure the patient is breathing the initial oxygen. After a good connection has been effected, and all connections and joints checked for leakage, carbon dioxide absorption is inaugurated (45 to 60 seconds).

The flowmeters are now set—oxygen 500 cc. per minute, cyclopropane 350 to 500 cc., helium 500 cc. This mixture is maintained until the lid reflex is abolished (2.5 to 4 minutes).

The flow of oxygen is now reduced to 250 to 350 cc. per minute, cyclopropane 75 to 150 cc.; helium is turned off. These volumes are maintained until the desired plane of anesthesia is reached.

Maintenance: A continuous flow of cyclopropane, 25 to 100 cc. per minute, is generally employed; oxygen 275 cc.; helium is added in 200 cc. amounts every thirty minutes through the maintenance period. Ether (approximately one ounce per hour) is required with most upper abdominal and stimulating manipulative procedures.

Recovery (de-anesthetization)—Prior to, or with the closing of the peritoneum, the cyclopropane and helium cylinder valves are closed. The residual gases are allowed to "run out" at the previous flowmeter settings. The oxygen flow is decreased to the minimum, 240 cc. (when allowable). Carbon dioxide absorption is discontinued about three minutes prior to completion of surgical closure.

The alternative frequently used is the employment of a fractional rebreathing technique of nitrous oxide—oxygen anesthesia. This technique is begun seven to ten minutes prior to completion of surgical closure.

Precautions against Explosion

Maintenance of a constant relative humidity of 55 to 65 per cent.

"Washing out" with water all rubber goods (conductive rubber) and connections prior to beginning the anesthetic.

Posting "warning signs" on each door to the room in which cyclopropane is being used.

Strict regulations regarding the anesthetist, as follows:

(a) Connection between the patient, the mask and the anesthetist is *never broken* after the administration is started.

(b) No shifting on stool or shuffling of feet on floor.

(c) Feet clad with conductive rubber treads contact floor at all times.

(d) Care regarding loss of large quantities of gas.

(e) Diligent eye on all personnel for possible breaks of technique.

General education and rigid technique is carried out by *all* operating room personnel regarding:

(a) Contact with patient, anesthesia apparatus and anesthetist.

(b) Use of electric switches, connections and appliances.

(c) Hazards of electrostatic and current charges.

(d) Attention to type of clothing and shoes.

The circulation of air in the operating suite is watched with utmost caution. A ventilating system is in use a great deal of the time. The air is changed so frequently that there is little danger of explosive mixtures accumulating.

This method of making *all personnel* conscious of the human element in explosion hazard; educating all in the proper handling of current and electrostatic charges, seems more reasonable than the employment of numerous hazard eliminators, none of which are absolutely reliable, but the presence of which may give a feeling of false security to a great percentage of the operating room personnel.

MARY HELEN SNIVELY

THE ADMINISTRATION OF CYCLOPROPANE (Continued)

From: Department of Anesthesia, University Hospitals of Cleveland, Ohio

1 *Cylinders:*

a. Kept away from radiators, steam pipes or other sources of heat, possible contact with fire, electrical equipment, et cetera.

b. No flame permitted in operating room or adjacent corridors where cylinders are stored.

c. No lighted cigars, cigarettes or pipes permitted in such places.

d. Cylinders kept in racks to prevent falling.

2. *Prohibited in Operating Room:*

a. Wool blankets

b. Silk or wool outer garments

c. Use of cautery, or such apparatus as Bovie unit, fulguration machine, nerve finder, bone saw, x-ray, motor-driven apparatus, or fluroscope.

d. Electrical switches of obsolete design

e. Pads on anesthetist's stool

f. Humidity never permitted to drop below 60 per cent. (Cyclopropane should not be administered unless humidity in operating room can be controlled, and we prefer to keep the humidity at 65 per cent.)

3. *Anesthesia Equipment:*

a. Machine equipped with the following:
   1. Carbon dioxide absorber (circle respirator or to and fro.)
   2. Special attachment for cyclopropane
   3. Special attachment for helium.

b. Breathing bag, tubes and face cushion made of conductive rubber

c. Moist soda lime (approximately 17 per cent moisture)

d. Before starting the anesthesia:
   1. Breathing bag rinsed with water, allowing about two ounces to remain in bag
   2. Breathing tubes and mask flushed with water

e. No oil or grease used on anesthesia machine

f. Absolutely leak-proof connections.

4. *During Operation:*

a. Anesthesia started in the operating room

b. Patient moved as little as possible after anesthetic is started

c. Patient's hair completely covered during the operation, and triangle not removed until the patient has reacted

d. Friction avoided within a radius of two feet of the anesthesia machine; following precautions to be used to this end:
   1. Visitors kept off the main floor of the operating room
   2. Personnel in the operating room not allowed near the machine
   3. Pens, pencils, charts, et cetera, not allowed to be placed on the machine

4. Screen between the anesthetist and operating field at sufficient distance to prevent friction of drapes in the immediate vicinity of the mask and tubing.

e. The anesthetist must not be relieved by another, at any stage of the anesthesia.

f. If oropharyngeal airway is to be inserted, it should be wet, and care taken that it is not clicked against the enamel of the teeth.

g. The operating team should guard against dropping instruments on the floor.

h. An absolutely leak-proof circuit maintained throughout the anesthesia.

i. Helium administered to cut down explosion hazard.

Note—Rules to safeguard against explosions are posted in main corridor of operating room. Anesthetist is responsible to see that such rules are carried out. Surgical personnel are required to be familiar with the rules. Whenever an opportunity presents itself the anesthetist emphasizes to the personnel in the operating room the potential dangers in the use of explosive anesthetics.

Technique of Administration

Fill the breathing bag with 70 per cent helium and 30 per cent oxygen. Set the oxygen at 300 to 400 cc. per minute, depending upon the minute volume of respiration. This will be affected by the premedication the patient has received.

Apply mask to patient's face, being careful not to allow the mixture in the tubes and bag to escape into the operating room, otherwise the percentage of helium and nitrogen in the upper respiratory tract will be disturbed.

Cyclopropane is *never* added to the mixture until a leak-proof circuit is established, and if the contents of the bag and mask have been lost while applying the mask, it will be necessary to add more helium to the mixture. Helium is not readily absorbable, therefore if it becomes necessary to add more helium, care should be taken that the helium does not build up in the circuit, thereby reducing the partial pressure of the oxygen within the circuit.

After a tight circuit has been established cyclopropane is added, flowing at the rate of 300 to 500 cc. per minute, during which time the patient's pulse is watched closely. The patient is allowed to breathe this mixture until the lid reflex and eyeball activity become sluggish.

At this time the cyclopropane is shut off entirely to allow time for diffusion of the gases, and the filter is cut into the circuit. The pulse is watched constantly and the blood pressure checked. After about two minutes cyclopropane is again added to the mixture at the rate of not more than 100 cc. per minute. The flow is lessened as the anesthesia deepens.

Ether is added if necessary, and we advocate its use for all operations requiring deep narcosis.

Throughout the anesthesia the oxygen gauge is set to approximate as closely as possible the metabolic needs of the patient—between 200 and 300 cc. per minute.

During the maintenance stage of anesthesia the filter is always kept on, and the volume of breathing varied by an increase or reduction in the amount of the anesthetic administered. After the patient is in the plane of anesthesia desired, if the circuit is absolutely leak-proof and if the soda lime is efficient,

the anesthetist should be able to discontinue the flow of cyclopropane entirely. We have found that even in difficult cases, after the first fifteen minutes we were able to maintain anesthesia without the addition of cyclopropane, or with a very slight amount—from 10 to 25 cc. per minute.

The filter is turned off as soon as possible at the end of the anesthesia, in order to allow the carbon dioxide to accumulate within the circuit.

The patient is never flushed with oxygen at the end of the anesthesia.

When the mask is about to be removed from the patient's face, the shut-off valve at the mask is closed, to prevent the escape of the contents of the bag and tubes into the operating room. Pure carbon dioxide is run into the bag and tubes before the contents are allowed to spill into the operating room.

A wet towel is placed over the patient's nose and mouth directly after the mask is removed.

After the machine has been flushed with carbon dioxide, the tubes and mask are removed from the machine and placed several feet distant from the machine.

The breathing bag is never removed from the machine until the contents have been allowed to escape into the operating room. Contents of the bag should not be "squeezed" from the bag.

GERTRUDE L. FIFE

From: Department of Anesthesia, St. Mary's Hospital, Detroit, Michigan

Cyclopropane was introduced at St. Mary's Hospital in November, 1937. It has been administered over twenty-one hundred times and for almost every type of operation, with satisfactory results. It is not used for those procedures necessitating extensive movement of the patient after anesthetization, such as rectal, vaginal and kidney operations, because of the possibility of the accumulation of static charges during movement of the patient.

All possible precautions should be instituted to prevent explosions during the administration of cyclopropane. The following are the main points of control which we have found practical, and up to this time entirely safe.

The operating rooms have no special features, the floor being terrazzo. During the administration of cyclopropane the electric switches are not turned on or off and electric plugs are neither connected nor disconnected. Electric motors, cautery and similar electrical equipment are not used during its administration and it is never used in the fluoroscopic room.

The humidity in the operating rooms is checked by means of a wet and dry bulb hygrometer, and as a humidity of 50 per cent or more is recommended, the operating rooms are maintained well above that level. Silk or wool clothing is not worn in the operating rooms and the nurses and anesthetists are not allowed to wear sharkskin uniforms. Leather or conductive rubber-soled shoes are worn by the personnel, sponge rubber or composition soles not being permitted. Cotton blankets are used on the patients and every effort is made to avoid friction of any kind.

We use the *Horton Intercoupler*, which connects the machine, the patient,

the table, the floor and the anesthetist, thereby establishing a unification of electrostatic charges. This intercoupler cannot be guaranteed as entirely foolproof but it is generally conceded that it constitutes the most outstanding safeguard that has yet been devised for the control of static electricity. The new conductive materials now on the market will of course further reduce this hazard, but have not entirely replaced the old type in this institution.

Before starting the anesthetic the breathing bag and tubing are thoroughly wet with water on the inside to insure the proper relative humidity within the anesthesia machine. The tank of cyclopropane is attached to the machine just before the anesthetic is started, and it is removed from the room before the mask is taken from the patient's face at the end of the operation. The entire circuit is thoroughly flushed with nitrous oxide and oxygen at the close of the anesthetic. After the anesthetic has been discontinued the breathing tubes are disconnected from the machine and placed at a distance from it, but the breathing bag is not disturbed.

We have had no explosions but we are fully aware that the greatest factor in the proper use of explosive gases is "eternal vigilance" which, as has been wisely stated, "is the price of safety."

We use the continuous flow method, as follows: The breathing bag is three-quarters filled with oxygen. With the oxygen flowmeter set at 500 cc. per minute, the mask is applied to the patient's face, and after a breath or two the cyclopropane is added, flowing at the rate of 500 cc. per minute. The patient is allowed to breathe this mixture from one to two minutes, depending on the patient and degree of relexation desired. The flow of cyclopropane is then stopped completely and an interval of several minutes is allowed to elapse to permit complete distribution of the anesthetic. The soda lime filter is turned on at this time and a continuous flow of cyclopropane—50 to 100 cc., is continued throughout the anesthesia. The oxygen flow is maintained throughout, approximating as closely as possible the metabolic needs of the patient. For upper abdominal surgery or for operations which require considerable relaxation, the addition of a small amount of ether is recommended. The actual amount of ether required is very small but by its use apnea is avoided and a smooth, even anesthesia is obtained, with adequate relaxation and a minimal degree of respiratory effort. To avoid immediate postanesthesia delirium, which is lessened, however, by the addition of ether, we add some nitrous oxide to the oxygen at the conclusion of the anesthesia, thoroughly ventilating the patient with this mixture for from three to five minutes.

GERTRUDE M. MYERS

FORTY-FOUR YEARS IN ANESTHESIA

WILHELMINA GULOTTA
Lincoln, Nebr.

Forty-four years in anesthesia—such is the impressive record of Nebraska's oldest member, Sister Marie Anderson of Immanuel Deaconess Hospital, Omaha. Her career began in the early nineties. She was living then in New Jersey and was about to set sail for India as a missionary. Happily she was dissuaded and her footsteps were turned to the rolling praries of the Midwest, where she was to devote herself to the giving of anesthetics.

SISTER MARIE S. ANDERSON
Immanuel Deaconess Hospital
Omaha, Nebr.

Speaking of those earlier days and of her first anesthesia, Sister Marie relates: "After my training was completed in Omaha, it was decided that I should take charge of a small private hospital in a little country town. As the doctor who owned the hospital did his own surgery, and as I was the only nurse, it fell to my lot to take care of the patients, prepare the operating room and give the anesthetic, so I had to learn something about it quickly. Dr. B. B. Davis hurriedly gave me brief instructions. He told me the signs of anesthesia and how to administer the ether, then performed the emergency abdominal operation and I carried the patient through safely, but I was happy when the patient was awake again. I nursed her until she left the hospital, and we became good friends. It pleases me immensely to add that I heard from this patient again just last year—after forty-four years—a joy to me because it was my first experience in anesthesia."

Sister Marie showed a glimpse of the innate modesty which is one of her charms, in describing the circumstances in connection with her application for membership in the National Association of Nurse Anesthesists in 1934, as follows: "I always felt the need of such an association and was pleased when I learned that it was being organized. I hesitated to apply for membership immediately, because it seemed so nation-wide and immense. Yet I knew I should join join some such organization, for the benefit it was sure to bring me. The first year slipped away while I was trying to gather courage, so to speak. Then putting my misgivings aside, I ventured to write to the president, stating all the facts of my anesthetic career, and I waited a bit nervously. It was a pleasant surprise when the answer came, followed by my membership card in due time. Few can imagine how highly I valued it then. But who will doubt the far greater value of membership in our organization today, when it is receiving recognition from the nursing and medical professions and the public alike?"

Two years later, in 1936, Sister Marie became a charter member in Nebraska and in her progressive way aided in organizing the state association. She has

served as an officer and has contributed much by her active interest in its growth and development. She always attends the meetings — neither distance, rain, ice nor snow can act as barriers to Sister Marie — like other Nebraska members, she will be at the meetings regardless.

Sister Marie speaks interestingly of her early service in Bethesda Hospital, St. Paul, Minnesota, saying: "The surgeons there were men who had received their Doctor's degree in Europe and preferred that we give chloroform. Many years passed during which we used only ether or chloroform. We had to administer anesthetics both in hospitals and in the homes. As there were no visiting nurses in those days, we Deaconesses also did a great deal of nursing among the poor and needy, both within and without the church membership.

"I was consecrated a Deaconess in 1902 and served as Parish Deaconess in Kansas City, Salt Lake City and Bingham Canyon, Utah, before gladly returning once more to Omaha. While engaged in bedside nursing, I often heard patients say: 'I am not afraid of the operation, but I do dread the anesthetic.' My sympathy grew ever stronger and I longed to take away that fear if I could. So I began experimenting by placing the ether mask over my face, just as we did when administering the ether to the patient. My reaction showed me how the patient must feel — it was a suffocating, breath-taking experience. As a result I began the practice of holding the mask away from the face at first, gradually letting it down as the patient became accustomed to breathing ether vapor. My new technique won the patients and was favored by other anesthetists and it was soon in common use, descriptions of the method appearing in the literature on anesthesia at that period." As soon as each new anesthetic gas appeared in its turn, Sister Marie promptly investigated it and mastered the new technique. She made generous use of each in her hospital, where doctors and patients welcomed them with enthusiasm.

Looking back over the steep path she had climbed to spiritual contentment, Sister Marie joyfully says: "It was a long and stony road, and many were the anxious moments, but only by God's help have I been able to administer many thousands of anesthetics without a single death on the operating table — a reward without price, for which I am humbly grateful."

Is it any wonder then that we, her friends here in Nebraska who know her best, are so proud of Sister Marie and her noble service as an anesthetist for so many years.

ALUMNAE MEETINGS

GRACE HOSPITAL, DETROIT

The Alumnae Association of Grace Hospital School of Anesthesia, Detroit, held its first fall meeting on Thursday, October 9, at the Abington Hotel, Detroit, with twenty-eight members present. The business meeting was preceded by a dinner.

A full and interesting report of the convention of the American Association of Nurse Anesthetists was given by Gertrude Myers and Mabel Courtney.

GLADYS L. LENZE, Secretary

UINVERSITY HOSPITALS OF CLEVELAND

The annual meeting of the Alumnae Association, University Hospitals (Lakeside) School of Anesthesia was held in Atlantic City, New Jersey, on September 17, 1941.

The meeting was called to order by the President, Clara R. Moore. Fol-

lowing the report of the Scholarship Committee it was voted that, as in the past five years, each member contribute $1.00 per year to the Scholarship Fund for another similar period. It was also voted that loans from the Scholarship Fund, not to exceed Two Hundred Dollars, be available to any student in the school upon recommendation of the Director of the school. A cognovit note bearing interest at 6 per cent per annum, must be signed by the student to whom a loan is made.

At the annual meeting in Boston in 1940 it was voted that the student from the University Hospitals School of Anesthesia submitting the best paper in the contest of the American Association of Nurse Anesthetists be awarded a prize of $10.00 payable from the interest income of the Agatha C. Hodgins Scholarship Fund. Miss Margaret E. Scott, who won the first prize in the national contest, and who is a graduate of the University Hospitals School of Anesthesia, was therefore awarded this additional prize of $10.00 and the Treasurer was authorized to make such payment to Miss Scott.

A report of the activities and progress of the School of Anesthesia was given by Gertrude Fife, Director.

It was voted unanimously to contribute the sum of $20.00 to the school for the purchase of books and periodicals.

Officers elected:

President	Clara R. Moore St. Alexis Hospital, Cleveland, Ohio
Vice-President	Lillian B. Roy City Hospital, Cleveland, Ohio
Secretary	Marian F. Bradley St. Luke's Hospital, Cleveland, Ohio
Treasurer	Kay Sheehan Cleveland Clinic Hospital, Cleveland, Ohio
Trustee—3-year	Lucy E. Richards City Hospital, Cleveland, Ohio

Banquet—Atlantic City

ACTIVITIES OF STATE ASSOCIATIONS

ANESTHETISTS OF NORTH CAROLINA ORGANIZED

On May 10, 1941, nine anesthetists met at the Sir Walter Hotel, Raleigh, North Carolina, for the purpose of organizing the North Carolina Nurse Anesthetists' Association.

Mrs. Addie F. Medlin, Roanoke Rapids, acted as Chairman pro tem. A Constitution and By-Laws was adopted, and a Nominating Committee appointed by the Chairman, as follows:

Mary H. Snively	Duke University Hospital, Durham
Anna McKeon	City Hospital, Thomasville
Nell Luther	Rex Hospital, Raleigh

Officers Elected:

President
Carrie I. Salmon
Rex Hospital, Raleigh

Vice-President
Irene S. Clark
Roanoke Rapids

Secretary-Treasurer
Jamie Henley
North Carolina Orthopedic Hospital, Gastonia

Trustees, 3-year
Carrie I. Salmon
Addie F. Medlin
Anna McKeon
Nell Luther

CARRIE I. SALMON
President

The Association has become affiliated with the American Association of Nurse Anesthetists.

OKLAHOMA

The Oklahoma Association of Nurse Anesthetists met in the Nurses' Residence, Wesley Hospital, Oklahoma City, on September 6, 1941.

The meeting was called to order by the President, Dixie Diefenderfer, Wesley Hospital, Oklahoma City, and a round table discussion was held on intravenous anesthesia.

Regret was expressed at the loss of Julia D. Loftus, who has served as Secretary-Treasurer of the Oklahoma Association for a number of years, and who has now located in Amherst, Texas.

Officers elected:

President	Hellon Gandy Bone and Joint Hospital, Oklahoma City
Vice-President	Frances Price Masonic Hospital, Guthrie
Secretary-Treasurer	Estelle Graham Valley View Hospital, Ada
Historian	Eula McNiel Parks 520 E. Washington, McAlester

CALIFORNIA

The September meeting of the California Anesthetists was held on the 2nd at the home of the President, Mrs. Mabel Cauthorn of San Mateo. Eighteen members were present, and a guest from the Washington Association, Miss Ann Beausoleil of Deaconess Hospital, Spokane. Preceding the business session a delicious barbecue supper was served.

Following the reading of the minutes of the May meeting, the President asked for suggestions as to matters to be taken up at the meeting of the Advisory Council in Atlantic City. It was suggested that the stand of the American Association of Nurse Anesthetists toward the male nurse anesthetist be clarified, and that inquiry be made as to whether or not co-educational Schools of Anesthesia are approved by the American Association.

Miss Eva Wilson was appointed to fill a vacancy on the Nominating Committee, serving with Miss Katherine Keenan, Chairman and Miss Irma Wilkinson. Miss Elizabeth Jons was appointed to replace Miss Irene Doran on the Membership Committee.

In order to obviate the necessity of making an annual assessment to raise funds for the expenses of a delegate to the American Association convention, it was decided to increase the annual dues to $7.00.

A tentative invitation was extended by Miss Ada Kemp to hold the November meeting at Franklin Hospital, San Francisco.

COLORADO

The Colorado Association of Nurse Anesthetists held a meeting at Presbyterian Hospital, Denver, on September 24, 1941, with fourteen members present.

Following the business session, at which Ethel M. Currie, President, presided, Captain La Roe of Lowery Field, Denver, talked on the subject "Oxygen Needs in the Field of Aviation."

The annual meeting of the Colorado Association will be held in the Library of Presbyterian Hospital, Denver, on November 13, 1941. Eleanor Scheirer, Mercy Hospital, Denver, is Chairman of the Program Committee.

MICHIGAN

The fourth anniversary meeting of the Michigan Association of Nurse Anesthetists will be held on Saturday, November 8, at 8:00 P. M., at the Statler Hotel, Detroit.

MARY MARTIN and KATHLEEN STURGEON, MICH.; VERNA RICE, ALA.

Dr. Carl Moyer, University of Michigan Hospital, Ann Arbor, will give a paper on "Physiology of Respiration in Relation to Pentothal Sodium Anesthesia," and George W. Christiansen, D. D. S., will speak on the subject "General Anesthesia in Oral Surgery," illustrating his talk with slides.

MID-SOUTH MEETING

The eighth annual convention of the Mid-South Post Graduate Nurse Anesthetists' Assembly, and the annual meeting of the Tennessee Association of Nurse Anesthetists, will be held at the Hotel Peabody, Memphis, Tennessee, on February 11-12, 1942, in conjunction with the Mid-South Post Graduate Medical Assembly. Anesthetists from all sections of the country will be welcome.

For further information write Mrs. Alberta K. Sullivan, 48 South Diana, Memphis, Tenn., or Mrs. Theresa W. Trail, 618 Stonewall Street, Memphis.

MISS WILLENBORG RESIGNS

Miss Anna Willenborg, who has served the Association as Executive Secretary since the headquarters was established in Chicago in October, 1937, has resigned effective October 11, 1941, to return to active work in anesthesia.

The Board of Trustees wishes to express its appreciation of the interest and enthusiasm Miss Willenborg has always manifested in the work of the Association, and wishes her happiness as she again enters her chosen field.

Miss Mary E. Appel has been appointed to the position left vacant by Miss Willenborg, and entered upon her duties on October 13.

In Memoriam

Mrs. Mae Heath de Noyelles, who had been a member of the New York State and American Associations of Nurse Anesthetists since 1933, passed away on August 4, 1941. Mrs. de Noyelles was formerly employed at the Nursery & Child's Hospital, New York City, and later at St. John's Riverside Hospital, Yonkers, N. Y.

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AMERICAN ASSOCIATION OF NURSE ANESTHETISTS

1941-1942

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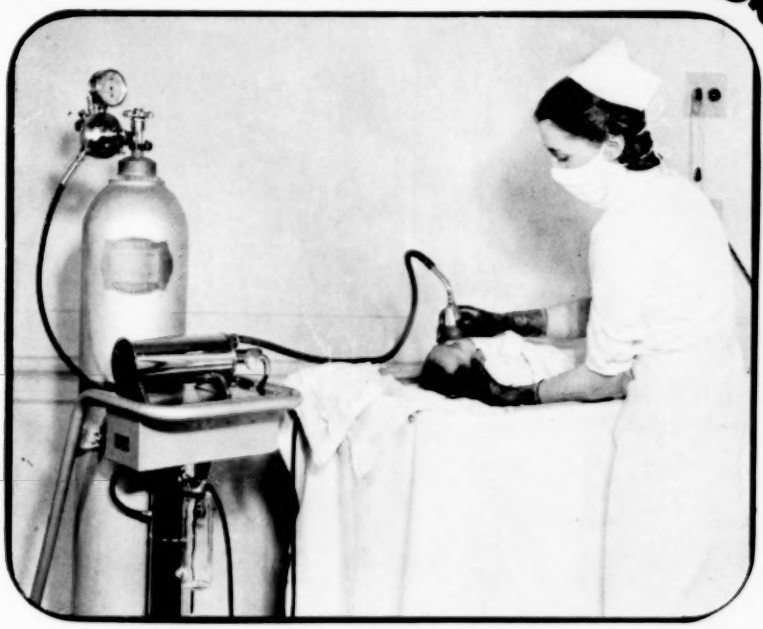

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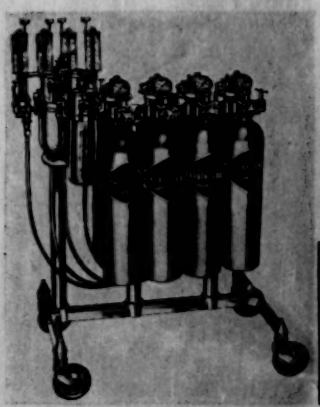

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